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THESIS

JUNIOR SURFACE WARFARE OFFICER

RETENTION

by

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March 1997

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Thesis
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JUNIOR SURFACE WARFARE OFFICER RETENTION

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of the requirements for the degree of

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The purpose of this thesis is to identify factors that lead to resignation of junior Surface Warfare Officers (SWO) and to develop an hedonic model of junior SWO turnover. The first source of data was a survey of active-duty, junior SWOs currently serving aboard ships. The second source of data was a survey of O-3 SWOs who are currently drilling in the Naval Reserves. Results of the two surveys were compared to identify differing levels of satisfaction with the active-duty Navy. The reservists also compared their satisfaction between the active-duty Navy and their current civilian employment. Civilian salary levels were obtained from the reservists and their spouses to determine the pay differential between the Navy and civilian jobs for former junior SWOs.

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I. INTRODUCTION

A. FUTURE DEPARTMENT HEAD REQUIREMENTS

There are several reasons why the current retention rates of junior Surface Warfare Officers pose a problem for the United States Navy. The primary reason retention is considered to be too low at its current rate (36 percent retention past minimum service requirement) is that there will be a shortfall in Surface Warfare Officers needed to fill department head billets in Fiscal Years 2000 through 2002. The Navy is currently accessing 800-900 officers when it only has 600 billets for these officers to fill at the division officer level. Even so, retention is so low that there is expected to be a shortfall in department heads in FY 2000-2002 unless retention improves by as much as 10 percentage points. This is extremely inefficient. To give an historical perspective of the feasibility of a dramatically improved retention rate, the average retention for Year Groups 1982 to 1988 was 34 percent and the average retention rate for Year Groups 75-84 was 37.5 percent. (Loeffler, 1996) In short, the required retention level is higher than has been attained in the Surface Warfare Officer community in over a generation.

B. THE INCREASING COMPLEXITY OF SURFACE WARFARE

Even if filling department head billets several years from now were not a problem, there are other reasons why the current retention rate should give cause for concern. Surface warfare is becoming increasingly complex. On today's digital battlefield, a higher level of expertise is required of Surface Warfare Officers than ever before. With turnover rates as high as they currently are, it is difficult to maintain the level of training and

experience necessary to cope with this increasingly complex environment. Programs by the Navy to minimize the manning on its ships will accentuate the importance of high skill and experience levels in the future. Since manpower expense constitutes approximately a quarter of the Navy's budget, (Budget of the United States Government, Fiscal Year 1997) in face of current budgetary constraints, it is imperative that the Navy be able to accomplish its mission with fewer personnel. As the manning levels drop, the experience level of each individual officer becomes increasingly critical.

C. THE HIGH COST OF TURNOVER

Low retention causes enormous costs in recruiting, educating, training, and compensating replacements for those who leave. The marginal commissioning cost of the average Surface Warfare Officer accession is \$48,000. The average marginal training cost per Surface Warfare Officer is \$51,093. (Bowman, 1995) That is a total replacement cost of nearly \$100,000 per Surface Warfare Officer. The real cost is probably even higher than that because it does not take into consideration the training time and cost and simultaneous lost productivity of the officer when he or she is getting surface warfare qualified on board ship. It is clear that higher retention translates into significant cost savings.

D. THE EFFECT OF TURNOVER ON OFFICER QUALITY

Low retention may result in a lower quality officer corps. In most cases, the officers who leave, do so voluntarily. The Navy plays little role in deciding which 36 percent stay and which 64 percent leave. There is no guarantee that the Navy will retain the best performing 36 percent. A recent meta-analysis of 56 civilian studies investigating

the links between performance and employee turnover revealed that "...all analyses indicated an inverse relationship between performance and voluntary turnover." The relationship between performance and turnover is not constant. It may be dependent on the relationship between performance and rewards: "...when rewards were contingent on performance, the inverse relationship between performance and voluntary turnover was larger ($\rho = -.27$) than it was when rewards were not linked to individual performance ($\rho = -.18$)." (Williams and Livingstone, 1994) Given the fact that in all but the most extreme cases, promotion and pay during the minimum service requirement are not based on performance, the link between performance and turnover for junior Surface Warfare Officers can be assumed to be weak. Research by Bowman has shown that in the case of Naval Academy graduates, "...the average quality of academy stayers (i.e., those who select to stay to be considered for promotion to O-4) differ only slightly compared to leavers (the vast majority who voluntarily self-select out of active duty)." (Bowman, 1995) Interestingly, Bowman found this not to be the case for ROTC and OCS graduates. "The average quality of the ROTC, and even more so OCS, graduate leavers is far below that of stayers from these two sources." (Bowman, 1995) If voluntary retention were higher across the board, or a retention incentive based on superior performance were given at the end of the minimum service requirement, then Navy could influence which officers remained and which ones did not. The result would be higher quality officers serving beyond the minimum service requirement.

E. THE EFFECT OF HIGH TURNOVER ON RECRUITING

Another disadvantage of a low retention rate is poor recruiting. Low retention is

a symptom of job dissatisfaction among some Surface Warfare Officers. Those Surface Warfare Officers who are dissatisfied with their jobs may communicate these feelings to midshipmen who have not yet decided their service selection. After hearing negative feedback from the fleet, midshipmen who have the vision to be a pilot, the academic background to be a submariner, or the physical abilities to be a Marine might be more likely to choose these communities instead of Surface Warfare. Midshipmen who have none of the characteristics required to choose anything else are forced by default to become Surface Warfare Officers. These officers may not be as motivated or as high quality as those who choose Surface Warfare voluntarily. The negative climate created by these dissatisfied officers may even lower the morale of those who are motivated and successful. The resulting negative climate of the community may be communicated again to midshipmen on summer cruises or by other means and the vicious cycle of poor recruiting, low morale, and poor retention is continued.

F. THE EFFECT OF TURNOVER ON PRODUCTIVITY

Low retention is a problem due to its negative effect on productivity. Research done by Brown and Leigh has demonstrated a clear link between psychological climate in the workplace and performance by employees. Their research showed "...how an environment that is perceived as psychologically safe and meaningful is related to greater job involvement and commitment of time and energy in the work of the organization. In turn, greater involvement and effort are positively related to superior performance." Their study "...has shown that psychological climate and involvement influence people's tendencies to work long and hard." (Brown and Leigh, 1996)

In the situation when retention to the minimum service requirement is enforced by contract, it cannot be assumed that productivity is at its highest possible level for those who would rather be working somewhere else. Since 64 percent of Surface Warfare Officers leave when their commitment expires, it is more reasonable to assume that many of these officers would leave earlier if they had the option. It is inconceivable that those who are counting the days until their obligation expires are giving the Navy the full benefit of their initiative, training, and abilities. The incentive of future career advancement is absent for these individuals.

Research on morale in military units confirms this. "Military units rated high on the morale scales were also rated high on overall effectiveness and low on frequency of low-morale activities like dissent, drug abuse, and destruction/sabotage. Members of units rated high on some of the morale scales were more likely to report high morale and intentions of reenlisting." (Motowidlo and Borman, 1977). Hunter, Schmidt, and Judiesch determined that "...the top 1 percent of employees outperform average performers...by 127 percent in high-complexity jobs." (Williams and Livingstone, 1994). If there is even a small directional relationship involving poor performance, job satisfaction, and the intention to resign, the cost to the Navy is enormous.

In a study determining the financial cost of low job satisfaction among bank tellers, the results showed a direct-cost savings of over 100 dollars (1977 dollars) per employee per year for a .5 standard deviation improvement in job satisfaction. (Mirvis and Lawler, 1977). If conditions existed that resulted in higher voluntary retention, it would also result in a higher percentage of junior officers who were truly putting forth their best effort. The

Navy would benefit from the higher productivity of each additional career-minded officer. While it is not clear what the monetary savings would be in the case of Surface Warfare Officers, it is safe to think that it would be positive and significant.

G. TURNOVER AS A SYMPTOM

The final reason that low retention is a problem is that it may be a symptom that something is wrong within the organization. The fact that currently 64 percent of junior Surface Warfare Officers stay in the Navy only long enough meet the minimum service requirement is a strong indicator of deficiencies within the Surface Warfare community. Even if future billet requirements could be met with the implementation of monetary incentives, the current retention rate should be investigated to determine ways of identifying and correcting the deficiencies in the organization. For any organization to survive, it must continuously measure and improve itself. One important measure of an organization's quality is the retention of its employees. An organization that cannot instill commitment in its employees will have a difficult time instilling commitment in its customers -- in this case, the Department of the Navy, the Department of Defense, the United States Congress, and, ultimately, the American people.

II. LITERATURE REVIEW OF CIVILIAN STUDIES OF TURNOVER

The study of employee turnover and satisfaction is not new. In fact, more than three thousand studies on job satisfaction have been conducted in the last 60 years. (Quarstein, McAfee, and Glassman, 1992) There is more than just an academic interest in this field of study. The long-term performance of any organization is tied to the productivity, satisfaction, and retention of its members. Though most of the research has been conducted in the civilian environment, the findings may be applicable to the Surface Warfare community of the United States Navy.

A. WHAT PROCESS DOES AN EMPLOYEE USE WHEN DECIDING TO QUIT?

Several theories on the process of employee turnover have been developed over the years. March and Simon (1958) focused on the links between job satisfaction and employee turnover. (Lee, Mitchell, Wise, and Fireman, 1996) Traditional theory contends that there are three stages to employee turnover:

First, job dissatisfaction initiates the process. Second, employees search for alternatives prior to leaving their organizations. Third, people evaluate these alternatives using a subjective expected utility decision (SEU) model. (Lee et al., 1996)

In contrast, Lee and Mitchell's (1994) unfolding model states that there are four different possible decision paths to turnover:

"Decision path one. A shock to the system is theorized to elicit a memory probe for the recollection of a highly similar shock, situation, or response." For example, an employee may have planned to quit his job if he were to win the lottery. If he actually wins the

lottery (a shock), it invokes the previously developed plan to quit his job. The shock may be positive or negative. (Lee and Mitchell, 1994)

“Decision path two. A shock prompts an employee to reassess the quality of his or her basic attachment to the organization.” “For example, a woman is bypassed for promotion (a shock). As a result, she may feel that her career has been seriously hindered (an image violation); she may then decide that she can no longer work for the company and quits.” (Lee and Mitchell, 1994)

“Decision path three. A shock to the system signals an employee to assess whether a basic attachment could form with another organization.” “For example, a woman is transferred to another location (a shock) and becomes unhappy (misfit between shock and images). As a result, she begins to read employment advertisements and to signal colleagues that she might want to leave. When alternatives are located, they are again judged with respect to (her) images. If the surviving alternatives are judged acceptable but no better than the current situation, the employee stays. If one alternative is judged acceptable and better than the present situation, she leaves.” (Lee and Mitchell, 1994)

“Decision path four. Here, no shock is involved. . . . Over time, some employees may come to believe that they no longer fit in their jobs, because their values have become compromised or their goals are not being reached.” At this point, “. . . some people experience so much job dissatisfaction that they simply quit, regardless of the presence or absence of alternatives.” Others follow the traditional turnover model of “. . . image violation, some dissatisfaction, job search, evaluation of alternatives, and offers in hand.” (Lee and Mitchell, 1994)

Another model of turnover is the expectancy model. “Basic to expectancy theory is the idea that employees enter work organizations with expectations and values, and, if these expectations are met, the employees will likely remain members of the organization.” (Kim, Price, Mueller, Watson, 1996)

The model developed by Price and Mueller also specifies the process whereby met expectations and values, interacting with structural and environmental variables, are translated into staying in or leaving the work organization. Three variables - job satisfaction, organizational commitment, and search behavior - describe this process. (Kim, Price, Mueller, Watson, 1996)

B. ARE ALL EMPLOYEES EQUALLY LIKELY TO QUIT?

Jones and Sasser (1995) break down customers into four types based on the source of their loyalty to the organization. While the research focuses on the customers’ relationship to an organization, the findings can be applied to the employee’s relationship to an organization as well. The first type of customer is called “the loyalist or the apostle.” The loyalist is defined as someone who is completely satisfied with a product or service and can be counted on for repeat sales. Apostles are loyalists who are so satisfied, whose experience so far exceeds their expectations, that they share their strong, positive feelings with others. Apostles are your best salesmen. How does an organization develop loyalists within its ranks? It is not enough to treat loyalists well when everything is going right. The key is to treat them just as well, or better, when everything is going wrong. Even highly satisfied loyalists can become a defector if that individual experiences a single or string of product or customer service failures. The bottom line is that unless a customer is completely satisfied with a product or service, then that person is a possible defector. (Jones and Sasser, 1995)

The second type of customer is called “the defector or the terrorist.” A defector is anyone who leaves the company for another one. A defector can be any customer that is not completely satisfied. The worst defectors are called “terrorists.” These individuals are so dissatisfied with their experience that they look forward to telling everyone they know about their anger and frustration. (Jones and Sasser, 1995)

The third type of customer is “the mercenary.” The mercenary has no loyalty to the company whatsoever. They are attracted and retained by price alone and are always on the lookout for a better deal. What is worse, they are fickle and expensive to attract and retain. (Jones and Sasser, 1995)

The fourth type of customer is “the hostage.” Hostages are those who have no other choice but to remain with a company. No matter how badly the company treats this group, the members have no other choice but to take it. While many companies feel little urgency in correcting the problems faced by their “hostages,” there are two reasons why that is a dangerous attitude. First, if the company suddenly faces competition, the hostages will be the first to leave. Not only is it expensive to replace these individuals, but many may seek revenge. Many will become “terrorists.” Second, even if the company retains hostages, they may attempt to make it as difficult and expensive as possible for the company. They will destroy the morale of those individuals who remain by choice. (Jones and Sasser, 1995)

In the context of Jones and Sasser’s customer loyalty model, how should junior Surface Warfare Officers serving their minimum service requirement be categorized? Those officers who are serving only to meet their minimum service requirement are

“hostages.” Those officers that would stay on active duty without an obligation to serve are the loyalists. When the service obligation expires, we can determine to which group an officer belongs by his or her actions. Those who remain after the obligation expires are the “loyalists” and “apostles.” Those who depart were the “hostages” and have now become “defectors” or even “terrorists.” In the surface nuclear community, those who remain solely due to the retention bonus are the “mercenaries.”

C. WHAT IS THE ROLE OF JOB SATISFACTION IN EMPLOYEE TURNOVER?

It seems that the evidence of a link between job satisfaction and turnover is overwhelming. “Carland, Spector (1987), in a meta-analysis of 47 studies, estimated a corrected correlation between job satisfaction and turnover of $-.26$ (the 95 percent confidence interval did not include zero).” (Judge, 1993) However, the strength of that link is not consistent from organization to organization or from individual to individual. While research has shown that the employee’s level of job satisfaction affects commitment to the organization, there is also evidence to support that the reverse is also true. That is, the commitment to the organization may affect the employee’s level of job satisfaction. “...Identical events can hold different meaning to individuals depending on their frame of reference toward the organization (cf., Smith, Kendall, & Hulin, 1969). Although the same environmental stimuli may be perceived by newcomers, their interpretations may vary systematically with their commitment propensity. Individuals with higher commitment propensity may interpret the same events more favorably than with lower commitment propensity.” (Lee, et al., 1996)

The fact that graduates of the Naval Academy have higher retention rates than those from Officer Candidate School (OCS) or Naval Reserve Officer Training Corps (NROTC) (Bowman, 1995) may be in part due to their higher commitment to the Navy. Whether that commitment was established prior to attending the Naval Academy and/or was solidified while at the Academy, its effect may be to cause Academy graduates to react more favorably than graduates of other commissioning sources to the same circumstances.

In 1952, Weitz “. . . speculated that if two workers report the same level of job satisfaction, the one most [sic] likely to quit is the one with the highest [sic] predisposition to be happy or satisfied in general.” The research conducted by Judge concluded that “. . . individuals dissatisfied with their jobs but positively disposed to life in general were the individuals most likely to quit.” (Judge, 1993)

If predisposition is a factor in unrestricted line officer retention then the implications are ominous. It implies that a sorting process takes place at the end of the minimum service requirement in which the survivors are increasingly made up of those who are more negatively disposed to life in general. While other organizations may be able to laterally input positively disposed individuals at nearly any level of the organization, unrestricted line communities in the Navy for the most part do not. One complaint that many junior Surface Warfare Officers have is with the quality of their immediate superior. While that is not an unusual complaint in any work setting, Judge's research into the connection between disposition and turnover may give some insight into the mechanism that creates such an environment.

Judge's work also helps explain why most satisfaction surveys do not explain more of the decision of employees to stay or leave. One significant excluded variable in these analyses of satisfaction may be the disposition of the respondent. The general disposition of the respondent may be dissected into more specific categories including what are sometimes referred to as "taste for military life." The implication is that different people subjected to identical conditions can react very differently depending on their individual tastes or sensitivities to that environment. Those who are less sensitive to negative work factors may be more likely to remain. Those who are more sensitive may be more likely to quit. If sorting based on sensitivity to negative work factors is taking place in the Surface Warfare community, then that has implications for the characteristics of those who stay beyond the minimum service requirement. Those who stay beyond their minimum service requirement will be less sensitive to negative work factors, on average, than those who have not yet completed their minimum service requirement. Again, the lateral influx of employees at all levels would reduce the effect of this sorting process in other organizations, but does not occur in the unrestricted line communities of the United States Navy.

D. DOES THE LEVEL OF JOB-RELATED STRESS AFFECT JOB SATISFACTION?

"Job stress has four dimensions: resource inadequacy, role ambiguity, role conflict, and workload." (Kim, Price, Mueller, and Watson, 1996) In the current environment of shrinking resources and constantly changing missions, the Navy appears to have all of the conditions necessary for high stress. Some studies have confirmed the connection between

stress and job satisfaction. "For the sales profession, two broad influences that have consistently been shown to influence satisfaction are the stress associated with a salesperson's job and the impact of leadership behavior (Behrman and Perrault 1984; Teas 1983)" (Jones, Kantak, Futrell, and Johnston, 1996)

"However, a considerable amount of literature (Beehr, 1976; Kaufman, 1989; Karasek & Theorell, 1990) suggests that high amounts of autonomy and social support may buffer the impact of job stress on job satisfaction and organizational commitment. For instance, individuals who experience considerable stress may not be dissatisfied and be relatively committed if they can influence their jobs or they receive strong assistance from others." (Kim, et al., 1996). In fact, a study of turnover among Air Force physicians found that "... job-stress variables are not found to be highly important, either in their impact on intent to stay or on satisfaction and commitment." (Kim, et al., 1996)

E. DO DEMOGRAPHIC FACTORS INFLUENCE THE PROBABILITY OF QUITTING?

Age seems to have the most significant demographic influence on turnover. A study by Meyer, Beville, Magedanz, and Hackert (1979) showed that younger employees of the State of South Dakota had significantly higher turnover rates than older employees. "Possible explanations for the relationship between quit rates and youth include indecision by younger employees regarding preferred career paths and region of residence, as well as the possible absence of increased family responsibilities and/or financial obligations that may constrain quit decisions." (Kellough and Osuna, 1995)

Depending on the situation, gender may or may not have an impact on turnover

among employees. “For individual employees of the same age and of similar qualifications, tenure, and job placement, gender appears to have little effect on the decision to quit (Blau and Kahn, 1981; Lewis and Park, 1989; Lewis, 1991). Lewis and Park (1989), however, did find that among young professionals and administrators, women were more likely to quit than men.” (Kellough and Osuna, 1995)

Race was found to have an inconsistent role in turnover:

...[W]hen certain personal and job characteristics were controlled, Bleu and Kahn found that blacks actually quit significantly less than whites (Blau and Kahn 1981). Some research suggests that racial/ethnic discrimination in labor markets, which has the effect of making job searches more difficult for minorities, also works to deter members of minority groups from quitting (Holmlund and Lang, 1985; Zax, 1989)
(Kellough and Osuna, 1995)

However, “ . . . when occupational and other characteristics are held constant, women and minorities have no greater propensity to quit than other workers.” (Kellough and Osuna, 1995)

F. DOES THE LEVEL OF TRAINING AND EXPERTISE AFFECT THE PROBABILITY OF QUITTING?

“A review of the literature by Frice (1977) finds a substantial amount of evidence to support the notion that occupational professionalism is positively associated with quit behavior because individuals in such positions often have numerous alternative job opportunities.” (Kellough and Osuna, 1995) The implication in the Surface Warfare community is twofold. It explains why nuclear-trained Surface Warfare Officers have required an annual bonus to maintain retention at the required levels while, until recently, other Surface Warfare Officers have not. As Surface Warfare Officers become more

highly trained and are required to work with increasingly complex systems, it follows that the number of acceptable job opportunities for them outside military service will continue to grow. If all other factors are held constant, this trend alone would tend to predict declining retention among junior Surface Warfare Officers.

G. WHAT IS THE ROLE OF GENERAL ECONOMIC PROSPERITY IN THE STAY-LEAVE DECISION OF EMPLOYEES?

It seems clear that economic conditions play a role in the stay-leave decision. At one extreme, some employees may be so dissatisfied with their work environment that they will leave regardless of economic conditions or the probability of obtaining another job. At the other extreme, some employees have so much loyalty or satisfaction with their jobs, that they would be unwilling to leave regardless of the economic conditions. Most employees fall in between the two extremes, always scanning at some level the alternatives to their current employment. Carsten and Spector performed research that studied the link between economic conditions and employee turnover. Their model predicted “. . . that the relation between job satisfaction and turnover will be strong during periods of low unemployment (economic prosperity) and weak during periods of high unemployment (economic hardship). These results indicate that the job satisfaction-turnover relation became weaker as the employment level (available alternatives) decreased.” (Carsten and Spector, 1987)

Among members of the military, external economic conditions may play less of a role. Miller, Katerberg, and Hulin (1979) found that economic conditions played a relatively small role in the turnover decisions of the National Guardsmen. “. . . [I]t seems

more likely that labor market perceptions may influence resignation behavior only under extreme, negative circumstances (e.g., economic recession), acting as a constraint on negative affect being translated into turnover.” (Miller, et al., 1979)

H. IS THERE A CORRELATION BETWEEN EMPLOYEE PERFORMANCE AND RISK OF TURNOVER?

While much research has been done on the *frequency* of employee turnover, far less research has been done on the *functionality* of employee turnover. Functionality refers to the quality of the employees you retain compared to the quality of those you lose. Some level of employee turnover is, in fact, desirable. However, this is only true if the organization is ridding itself of its worst employees and retaining its best employees. That is why the functionality of turnover is as important as the frequency of turnover to the health of the organization. (Hollenbeck and Williams, 1986)

Harrison, Virick, and William (1996) conducted research on sales representatives to find the determinants of the functionality of turnover. They confirmed that functionality of turnover is significantly affected by the magnitude of the reward contingency for performance. The larger the difference in reward for those who perform well from those who do not, the greater the positive correlation between staying and performance. The hypothesized mechanism is that in the high-reward situation, the job satisfaction of the high performers is increased by receiving the reward. The increased satisfaction results in higher retention for this group. The low performers have their job satisfaction lowered by the knowledge that they did not receive a reward for their efforts. The lower satisfaction causes lower retention for this group. In situations where there is no reward for high

performance, the opposite might occur. Those who perform better have their job satisfaction lowered by the knowledge that they will not receive any reward for their efforts. Therefore, their retention is lowered. Those who perform poorly may have their job satisfaction increased by the knowledge that they will not be punished for poor performance. The result is that their retention is increased. (Harrison, Virick, and William, 1996)

These findings have ominous implications for the functionality of turnover among junior Surface Warfare Officers. During the period of the minimum service requirement, there is little difference in reward based on performance. Fitness reports have been historically inflated, promotions and pay raises are automatic except in extreme cases, and the awarding of medals to junior officers is perceived to be inconsistent and/or infrequent. In such an environment, it is natural to assume that the functionality of turnover is neutral at best or dysfunctional at worst.

The fact that some communities receive retention bonuses while non-nuclear Surface Warfare Officers do not, may have a similar effect on the entire Surface Warfare community. In addition to the economic influence the bonuses have on the retention of the communities that receive them, they may also have a retention-lowering effect on the communities that do not. Surface Warfare Officers may have their satisfaction and commitment to the Navy lowered by the fact that they are currently not eligible for a bonus even though they may feel they work as hard as those who are eligible.

I. WHEN DO EMPLOYEES DECIDE TO QUIT?

In the situation in which employees enter a contract to work for a specific length

of time, there may be three different groups with respect to their stay/leave decision. The first group decides prior to joining the organization that it will quit when the contract expires. The military targets this group specifically with its advertising messages that proclaim the military's value as a stepping stone to a civilian career or to a college education. In a study of turnover in the National Guard in 1979, Mobley, Horner, and Hollingsworth "... indicated that intentions to quit were often formed at the time of the original enlistment act, before experience in the organization had accrued." (Mobley, Horner, and Hollingsworth, 1979)

Members of the second group join the military with an open mind. When they enter the service, they do not have any specific plans to stay or leave at the expiration of their obligated service. They are constantly reevaluating their career decision and its alternatives.

Members of the third group decided to be careerists from the beginning. This group will remain in the service at least twenty years unless they experience an accumulation of dissatisfaction with the service over a lengthy period of time, as described by the Situational Occurrences theory. Mowdy, Porter and Steers (1982) conjectured that "... newcomers who enter with a stronger desire for an organizational career and more familiarity with the organization's core values should develop stronger subsequent organizational commitment than those who enter with lower levels of such personal characteristics." (Lee, et al. 1996)

Qaurstein, McAfee, and Glassman (1992) have developed the Situational Occurrences Theory of job satisfaction. The theory holds that job satisfaction is

determined by two factors: “situational characteristics” and “situational occurrences.”

Situational characteristics are all of the work factors that can be evaluated prior to actually accepting the job. Examples are pay, promotional opportunities, working conditions, company policies, and supervision. “Situational occurrences” are factors that are often discovered after starting work at a new job and may be positive or negative. Positive examples might be giving a concrete reward for employees who perform a task exceptionally well. “Negative examples include all of the seemingly little nuisances one finds on the job, such as insufficient paper towels in the rest rooms, broken copying equipment, forgetful supervisors, a rude remark by a co-worker, and confusing memos.” (Quarstein, et al., 1992)

The effect of these positive and negative situational occurrences may be cumulative. “Repeated exposure to confusing memos, rude remarks made by others, loud telephones, dirty file cabinets, errors made on one’s paycheck, broken chairs, supply shortages, etc., may ultimately become the straws that break the camel’s back.” (Quarstein, et al., 1992)

J. WILL EMPLOYEES BE WILLING TO ACCEPT LOWER PAY IN EXCHANGE FOR MORE FAVORABLE JOB ATTRIBUTES?

Sherwin Rosen popularized the theory of hedonic wages in 1974. According to the hedonic wage theory, the “. . . variation in the observed mix of benefits and cash compensation offered by employers competing for workers having the same productivity is the result of the different tastes for benefits of those workers and the differential ability of employers to provide those benefits.” (Famulari and Manser, 1989)

In 1996, McCue and Reed conducted research on the willingness of employees to pay for improved job attributes. The study utilized the National Longitudinal Survey, Youth Cohort, which surveyed 12,686 individuals about their willingness to accept different jobs at different wage levels. The study concluded “ . . . that non-wage differences between jobs are very important to workers.” The reservation wage is the wage below which the worker would refuse the job in question. (Ehrenberg and Smith, 1994) The difference in the reservation wage for the least preferred job and the most preferred job was \$2.09 per hour. That is a significant difference for minimum-wage workers. Since the jobs used in the survey were low-skill, entry-level jobs, very few had any non-pecuniary fringe benefits to bias the results. The only differences between the jobs were perceived attributes associated with the type of work. (McCue and Reed, 1996)

There are two factors that influence the demand for non-wage benefits. The first is the presence of a differential tax rate. If tax rates become progressively higher as income increases, then individuals will demand a higher ratio of non-wage benefits (that are not taxed) to wages (that are taxed) as their incomes increase. The second is a result of the view of non-wage benefits as being a “normal” good. A normal good is a good for which the demand increases as income increases. Steven Woodbury estimated that a one-percent increase in income leads to a greater-than-one-percent increase in the demand for non-wage benefits. (Famulari and Manser, 1989)

Both factors may play a role in the turnover decisions of junior Surface Warfare Officers. It is possible that as officers receive promotions and raises in pay, they may expect the ratio of non-wage benefits to wages to increase. While the phrase “rank has its

privileges,” has a long history in the United States Navy, officers may not see any increases in non-wage benefits during their minimum service requirement. The result is an actual decline in the non-wage benefit to wage ratio and subsequent dissatisfaction with service in the Navy.

If junior Surface Warfare Officers are resigning their commissions in order to obtain jobs with higher pay and more desirable job attributes, then that would clearly be rational economic behavior. Certainly, as a minimum, a pay raise would be required to improve retention if this is the case. Given the results of the McCue and Reed study, however, it should not be surprising to find that some junior Surface Warfare Officers may be resigning their commissions to obtain jobs at lower salaries in exchange for improved non-pecuniary job attributes. For these officers, a pay raise may improve retention by increasing the opportunity cost of the improved job attributes of their alternative employment. However, if most junior Surface Warfare Officers are resigning for improved job attributes at the expense of lower pay, then that suggests the possibility of improving retention by improving Navy job attributes instead of raising Navy pay.

K. ARE THERE ANY SITUATIONS IN THE CIVILIAN SECTOR THAT RESEMBLE THE PROBLEM OF SURFACE WARFARE OFFICER TURNOVER?

A strikingly similar situation was uncovered in a study of truck driver turnover by Richard, LeMay, and Taylor (1995). In 1992, the median turnover rate for all U.S. companies was 8.4 percent. The average turnover for all U.S. trucking firms was 38 percent. (Richard et al., 1995) In addition to high turnover rates, another similarity

between the trucking industry and the Surface Warfare community is that the job requires unpredictable absences from home for long periods of time. Like Surface Warfare community managers, managers of trucking firms are quick to attribute turnover to insufficient pay or long separations from home. Richard et al. are skeptical that these two reasons are the primary ones for high turnover rates:

While these variables certainly influence drivers' loyalty to the company or to the profession, they are not necessarily the primary causes of driver turnover. Attributing turnover to pay and time home does one very important thing, however. It frees managers from having to make difficult changes in the company. (Richard, et al., 1995)

Substantiating their claim, Richard et al. report that when two large trucking firms increased their wages, turnover improved and then gradually returned to its previous level. Instead of pay being the primary cause of turnover, other significant causes were found. In decreasing order of importance, the authors noted the following to be the main causes of truck driver turnover: the relationship with dispatchers, driver attitudes towards top management, the realism of job previews, fairness in evaluations, accuracy of paychecks, and attitudes about other trucking companies. If the situations are similar between the trucking industry and the Surface Warfare community, then it is possible the causes of turnover are similar as well.

III. LITERATURE REVIEW OF MILITARY STUDIES ON RETENTION

A. SURFACE WARFARE OFFICER STUDIES IN THE 1970S and 1980S

At least as far back as the 1960s, retention of junior Surface Warfare Officers has been a recognized problem within the United States Navy. (Githens, 1979) Depending on the focus of the research and the time period in which it was conducted, different causes have been identified for poor retention of junior Surface Warfare Officers over the years. In 1979, several studies were conducted by the Navy on this problem. They focused on initial assignments, personal qualification standards, the spouses of junior officers, officer quality, and the career decision process.

In 1979, Holzbach and Morrison found that “Although most JO’s [Junior Officers] receive satisfactory assignments, the assignment process itself, including interactions with detailers and the timing of assignment notifications, has a negative impact on JO career decisions.” (Holzbach, Morrison, 1979) At the time, “The typical amount of prior notification of new assignments -- 2 months or less -- is considered inadequate by JO’s.” (Holzbach and Morrison, 1979)

In another 1979 Navy study, the focus was on the role of spouses in the career decisions of junior Surface Warfare Officers. The study found that “Officers, in general, felt their wives were supportive of their Navy careers. . . . Wives who worked outside the home were less supportive of a Navy career than those who worked within the home. Wives who were teachers or Navy officers found relocations were difficult to accommodate and were more reluctant for their husbands to remain in the Navy than were

wives in other types of jobs.” (Mohr, Holzbach, and Morrison, 1979) The same study also found that “The least favorable aspect of a Navy career, according to the wives, was separations. Pay, benefits, and location changes were viewed as equal, somewhat positive factors. . . . Wives who found the JO’s superior officers helpful in adjusting to a new location tended to be more supportive of a Navy career.” (Mohr, et al., 1979)

In the Navy study by Cook and Morrison (1982), the focus of the research was on the relationship between career intentions and the professional development of Junior Surface Warfare Officers. The study concluded that “Controlling for time in service, career intentions of junior SWOs [Surface Warfare Officers] were positively related to SWO PQS [Personal Qualification System] progress. In addition, expeditious completion of SWO PQS was positively related to junior SWO performance evaluations (fitness reports).” (Cook and Morrison, 1982) The study also looked at the relationship between billet, PQS progress, and career intentions. Junior SWOs who were assigned to engineering billets for the majority of their initial sea tour completed their SWO qualifications at a slower rate and had significantly lower career intentions than did SWOs who were assigned to other departments. Interestingly, the fitness reports for SWOs assigned to engineering were, on average, slightly higher than fitness reports for SWOs who were assigned to other departments. (Cook and Morrison, 1982)

In 1983, the Navy studied the connection between first sea tour factors and the retention of junior Surface Warfare Officers. The study found that “. . . career intent was found to be the single best predictor (of retention beyond the Minimum Service Requirement), accounting for 25 percent of the variance in the criterion when used by

itself.” Specifically, “Career intent expressed by junior SWOs 1 to 2 years prior to MSR is the best predictor available to forecast whether the officers will continue their career beyond their first opportunity to resign.” (Cook and Morrison, 1983) That officers often do what they state they intend to do should not be surprising. While it might be useful for planning and forecasting, it does little to explain why these officers are leaving. Cook and Morrison also found that several other factors associated with an officer’s first ship had a significant impact on retention. “Officers receiving a split first assignment were more likely to resign than those not receiving a split assignment.” (Cook and Morrison) That is an ominous result because the Navy recently instituted a policy that requires split tours for all junior Surface Warfare Officers in order to increase their exposure to different platforms. It is too soon to tell, but if history is a guide, the new split-tour policy may result in lower junior Surface Warfare Officer retention.

How an officer perceives his or her first tour was found to have a significant impact on retention. “Junior SWO career decisions are influenced substantially by their first sea tour experiences, perceptions of their work environment, and professional development opportunities.” (Cook and Morrison, 1982) Cook and Morrison did not find, however, that continuance, career intent, or organizational commitment was related to performance. This finding is consistent with an environment in which rewards are not linked to performance.

B. NAVAL AVIATOR TURNOVER

In 1991, Bruce, Russel, and Morrison conducted research into the low retention rates in the naval aviation community. Though aviators have very different career paths,

service obligations, retention incentives, and civilian employment opportunities from Surface Warfare Officers, this study is noteworthy because of its methodology. A survey of former naval aviators was conducted after they had left active-duty. The results of the survey were compared with the results of earlier surveys conducted on active-duty naval aviators. The five leading reasons stated by the aviators for resigning were: the amount of paperwork, crises management, detailers, work hours, and sea duty. The only opinion that changed significantly from the active-duty to the civilian responses concerned the quality of housing. Active-duty officers perceived housing in a civilian career to be much better than housing while on active duty. However, those who actually had left the service and obtained civilian housing perceived it to be more nearly comparable to housing while on active duty. Notably, naval aviators who had resigned their commissions were, in general, quite satisfied with their decisions and would do it all over again. (Bruce, et al., 1991)

C. RECENT RESIGNATION SURVEY RESULTS

When Navy officers resign their commissions and leave active duty, they are required to complete a survey that asks them to explain why they are resigning. Each quarter, the results of this survey are tabulated and sent to the Assistant Chief of Naval Personnel for Military Personnel, Policy, and Career Progression (Pers -2). The Second Quarter, Fiscal Year 1996 report listed the year-to-date top ten reasons for resignations of Surface Warfare Officers. The following were the six most commonly given reasons in decreasing order of importance: amount of family separation, promotion and advancement opportunity, enjoyment from job, job fulfillment/challenge, amount of sea duty, and

fairness in performance evaluations. (Nordmeyer, 1996)

D. SWO RETENTION POINT PAPER

CDR Pete Dougherty, the Surface Warfare community manager in BuPers (Pers-211w) at the time, wrote a point paper on Surface Warfare Officer retention in 1994. The concern about SWO retention was caused by projections that were showing a 400 Surface Warfare Officer shortfall for FY-95. It was also projected that Surface Warfare would account for 50 percent of the entire Navy's officer shortfall for FY-95. He listed the following factors as appearing to be responsible for the poor Surface Warfare Officer retention rates:

1. "The Black Cloud Dilemma"

Navy-wide personnel cutbacks, an accelerated decommissioning schedule, and reduced opportunity for command gave the perception that a future in the Surface Warfare community was in doubt. "In addition, as evidenced in the enlisted communities, junior officers may have propensity to resign their commissions because their wardroom counterparts have, thus creating what (the Center for Navy Analysis) has dubbed the 'Lemming Effect.'"

2. "Family Separation: Doing More with Less"

The increased number of short-notice crises around the world has caused the Navy to increase the pace of its operations at the same time resources are being cut. This situation has increased the amount of family separation and increased the fatigue of crews and ships.

3. “Aggressive Inspection/Assist Visit schedule:”

The frequency of inspections and assist visits has put a strain on resources and endurance of the crews even when in home port. ”’Quality’ family time (is) minimized or non-existent. . . . As evidenced by Navy’s separation/PCS questionnaire, family separation is the Number (one) reason/concern of today’s officers, whether separating from the Navy or not.”

4. “OPPE (Operational Propulsion Plant Exam)”

This one inspection has become the pass/fail test for commanding officers. As a result, the massive preparations for this inspection has diminished the Quality of Life for entire crews of ships.

5. “Boys will be Boys”

The recent scandals that have embarrassed the Navy have had a dampening effect on activities that built camaraderie and raised job enjoyment. “ . . . The requisite O’Club ‘get-togethers’ of yesteryear, where steam was let off and fun had by all (‘Work hard, play hard’) are now practically non-existent.”

6. “Improved Job Market”

The current low unemployment rates have made the civilian job market favorable for junior Surface Warfare Officers to leave the Navy and to find another job.

7. “The ‘Baby Buster’ Generation”

The current generation, known as “Baby Busters,” places work at a lower priority than the older “Baby Boomer” generation does. “Baby Busters” see work as only a means to accomplish other things in their life - not as an end in itself. This philosophy may be

incompatible with service in the United States Navy. (Dougherty, 1994)

E. OTHER RECENT RESEARCH ON SWO RETENTION

In 1996, Lt. Glenn Bautista wrote a thesis at the Naval Postgraduate School that examined the connection between ship type and Surface Warfare Officer separation. He concluded that the interrelationship among ship type, performance, and personal characteristics was the most important factor in Surface Warfare Officer separation. Specifically, initial assignment to an aircraft carrier and combat-logistics forces reduced the probability of retention. On the other hand, initial assignment to a cruiser/destroyer increased the probability of retention.

In 1996, Nakada, Mackin, and Mackie conducted a Navy study on nuclear officer retention. Since some nuclear-qualified officers are Surface Warfare Officers, the results of this study should be particularly pertinent to the study of Surface Warfare Officer retention. The focus was on determining the pay elasticity of nuclear-trained officers for retention bonuses. The results may give us insight into how increases in pay might effect the retention of Surface Warfare Officers who are not nuclear-trained. The results of the Nakada et al. study should be applied to conventional Surface Warfare Officers with caution. There may be some systematic differences between nuclear-trained and non-nuclear-trained Surface Warfare officers in their response to a retention bonus. Nuclear-trained officers obtain more technical training than non-nuclear SWOs and must meet strict undergraduate academic performance criteria that conventional SWOs do not have to meet. For both reasons, nuclear-trained officers may have improved employment opportunities in the civilian market and might be less likely to accept a retention bonus

than conventional Surface Warfare Officers.

Economic conditions were not found to be an important factor in nuclear-officer retention.

Unemployment effects were not particularly strong, and were not statistically significant at the 0.05 level in most cases. Positive, significant unemployment coefficients were observed only for the full sample. In these equations, a 10 percent increase in the national unemployment rate results in predicted .4 percent increase in retention. (Nakada et al., 1996)

Some Surface Warfare Officers who choose nuclear training may be doing so merely for the increased pay given to those officers. Nuclear officers may systematically consider pay a higher priority in their career decisions than those who do not choose nuclear power. If this is the case, conventional Surface Warfare Officers may be less likely to accept a retention bonus than nuclear-trained Surface Warfare Officers.

Nakada, et al. found a pay elasticity for nuclear-trained Surface Warfare officers to be between .503 and .611. In other words, a ten per cent increase in regular military compensation results in a 5.03 percent to a 6.11 percent increase in retention. More important than the elasticity itself is the finding that increases in pay do have a significant, positive impact on the retention of nuclear-trained Surface Warfare Officers. As was noted earlier in the literature review, increases in pay alone may improve retention without improving commitment or loyalty to the organization. As soon as an officer's pay drops or a higher paying alternative becomes available, that officer may be likely to resign.

IV. METHODOLOGY

A. PROBLEMS WITH SURVEYS OF CURRENT EMPLOYEES TO INVESTIGATE TURNOVER

Employee turnover has been studied in many ways over the last sixty years. Many recent turnover studies are based on the findings of Mobley. Mobley proposed in 1977 that there is a link with several distinct steps between job dissatisfaction and the decision to quit. Mobley's theory was that dissatisfaction leads to thoughts about quitting. These thoughts lead to an evaluation of the utility of searching for alternative work, to actual search behavior, to evaluation of work alternatives, to intention to quit, and finally to the act of resignation. (Mobley, 1979) According to this theory, if improvements are made in the identified areas of high dissatisfaction, then employee satisfaction and retention will improve.

There is a weak link in the line of reasoning behind this method. The weak link is the connection between employee satisfaction with work factors and turnover. While many studies have shown that the employee job satisfaction is significant in explaining turnover, they also show that very little of the turnover is explained. Many employees who say they are satisfied with their job or customers who say they are satisfied with their purchase leave the company for another one shortly thereafter. Between 60 and 80 percent of customers who switch brands said they were satisfied or very satisfied with their brand just prior to switching. (Daniel and King, 1995)

There are a number of reasons for the fact that much of employee turnover is

unexplained by job satisfaction. There are many significant excluded variables in most models of employee turnover utilizing self-reported job satisfaction. As stated in the literature review, the correlation between job satisfaction and turnover varies with unemployment. Personal dispositional factors play a role in the correlation between job satisfaction and turnover. Demographic factors play an inconsistent role in turnover depending on the individual and the type of job. Commitment to the organization may also affect the correlation between job satisfaction and turnover. In total, these typically excluded variables may play a larger role in explaining employee turnover than job satisfaction itself.

Another deficiency in many satisfaction/turnover models is that there is an expectation that there is a linear relationship between job satisfaction and the probability of retention. Research by Jones and Sasser (1995) of customer loyalty shows that the relationship is not linear. Depending on the level of competition, they found that there is an exponential or logarithmic relationship between loyalty and satisfaction. In most competitive environments, loyalty can only be counted on by those who state that they have the highest level of satisfaction listed on the satisfaction scale. Anyone with less than complete satisfaction should be assumed to be conducting some level of search behavior for alternatives.

A very clear example of the disparity between satisfaction, loyalty, and retention can be found in the automobile manufacturer, Saturn Corporation. This example focuses on the customer - company relationship instead of the employee - company relationship. However, many of the same factors which affect one relationship, affect the other as well.

Saturn has stunned the automobile market with its extremely high levels of owner satisfaction. J.D. Powers research in 1994 found that 91.8 percent of Saturn owners were “satisfied with their car.” However, the same research showed that only 80.3 percent of Saturn customers said they were “loyal to the brand.” Only 66.3 percent of Saturn customers said they “intended to purchase another Saturn.” Even so, only 33.4 percent of Saturn owners said they “will definitely buy the same make.” (Sawyers, 1994) When it came to actually buying another Saturn, only 24.6 percent did. (Polk, 1997)

The retention of customers is quite different for Cadillac. Eighty-seven percent of Cadillac owners said they were “satisfied with their car.” Eighty-four percent of Cadillac owners said they were “loyal to the brand.” Seventy-one percent of Cadillac owners said they “intend to purchase the same make.” Forty-two percent of Cadillac owners said they “will definitely buy the same make.” (Sawyers, 1994) Finally, 43.8 percent of Cadillac owners actually purchased another Cadillac. (Polk, 1997)

What is the difference between Cadillac and Saturn? The difference is demographics. Saturn has the second highest number of owners under the age of thirty of any car make. A little over 18 percent of Saturn owners are under the age of thirty, which is exceeded only by Hyundai with 22 percent. In comparison, none of Cadillac owners surveyed were under the age of thirty. Saturn owners tend to be young, low income, and single or married without children. After owning a Saturn for several years, these owners have increased their incomes and number of dependents. Unfortunately, for these satisfied Saturn owners, Saturn does not make a larger, more expensive car. Therefore, these owners are forced to buy another make which does offer a larger, more expensive car to

fit their new lifestyles. Cadillac owners, in comparison, have very little changing in their lives. Cadillac owners are older, at the top of their earnings curves, and their children have left home. Saturn could not discover the reason for their low customer retention by surveying its existing customers. Because of their extremely high satisfaction, no significant reasons for defection can be found. It was only when Saturn discovered that they were losing customers to makers of larger, more expensive cars did they discover the reason for the low retention rates. Saturn now has plans to make a larger, more expensive car to meet the growing needs of its customers. (McGinn, 1996)

Could there be a parallel between the retention of customers by Saturn and retention of employees in the military? The demographics of both cases are similar. Saturn is seen as a starter car while the military is seen as a starter career. Both of these images are reinforced by each of the organization's own marketing strategies. Saturn loses many of its satisfied customers because these customers have outgrown the company's products. Could the military be losing some of its otherwise satisfied employees because those employees are outgrowing the military? Saturn found that surveying its current owners could not uncover the source of its retention problems. Could satisfaction surveys conducted by the military to uncover the source of its retention problems be equally as futile or misleading?

There are other reasons why job satisfaction surveys have not explained much of employee turnover. One reason is that they typically survey the wrong population. If employee turnover is the problem you are studying, then the population to study is the one that has left the organization, not the one that remains in the organization. Surveying your

current employees leads to several errors. The opinions of those who are going to stay may be systematically different from those who will leave. Unfortunately, at the time of the survey, it is not possible to know whether a respondent is a leaver or a stayer.

(Reicheld, 1996)

One solution to this problem is to wait a period of time and match the survey responses with actual turnover data. There are two problems with this solution. The waiting required to determine which employees stay and which remain means that the answers will not be obtained quickly to a retention problem that needs to be solved now. The second problem is that it assumes a correlation between satisfaction reported on a survey and turnover that may occur much later. The respondents themselves may not know whether they are leavers or stayers when they fill out the survey. Their future stay/leave decision may be based on events that have not even transpired at the time of the survey.

Some may argue that the opinions of all of their employees are valuable, so there is no need to make the distinction between stayers and leavers. If the problem were morale or employee satisfaction, that would be correct. However, when the problem is turnover, only the opinions of those who have left are pertinent. Only those employees who have left are the ones the organization wishes it had retained but did not.

Turnover is not a random event. There are systematic differences between those who stay and those who quit. Combining the opinions of stayers and leavers dilutes the only opinions critical for improving retention -- those who have left. One reason leavers are rarely surveyed is that they, by definition, rarely remain in contact with the

organization they leave. Therefore, it is expensive or impossible for the organization to locate the leavers to survey them. However, spending money to uncover incorrect reasons for employee turnover may be less expensive than the long-run consequences.

In some cases, the organization conducts an exit survey to determine the reasons for leaving. This method has the advantage of selecting only those who are leaving to answer the survey. While it is an improvement over surveying the entire workforce, this method is not without drawbacks either. One drawback is that the respondent may be fearful to state the reasons for departure truthfully. For instance, when an officer in the Navy writes his or her letter of resignation, it is done up to year of advance of actually leaving and the letter must be passed up that officer's chain of command. The pressure to understate or leave out key reasons for leaving may be enormous. The other drawback of a separation survey, like all other surveys, is that the responses are based on intentions and opinions. "Lefkowitz and Katz (1969), compared results in exit interviews with those obtained several months later by follow-up questionnaires. The subjects were female voluntary terminees from a garment factory. Considerable distortion was revealed in that 59 percent of the sample reported different reasons on the two sets of data." (Githens, 1979) While there may or may not be any reason to falsify the responses, even among completely honest respondents, it is more reliable to base the study of turnover on the actions of individuals instead of their opinions or intentions.

To illustrate the differences in the investigation techniques, let us apply these concepts to the crash of an F-14 fighter. The analogy is that the F-14 that crashed is like an employee who quit his or her job. As the investigating officer of this crash would you

rather study all of the F-14's that are still flying or the one that is smouldering on the ground? While mishap investigations often look at the other aircraft in the wing or squadron that are still flying, if possible, the focus of the investigation is usually on the plane that crashed. The investigation of the other aircraft may uncover problems that may or may not have anything to do with the crash and may or may not cause crashes for those aircraft in the future. Certainly those items should be corrected when discovered.

Unfortunately, there is no guarantee that any of the problems in the other planes caused the crash in question or will cause any crashes in the future. Much effort may be expended in addressing more trivial problems when a significantly more serious problem remains hidden in the remains of the crashed aircraft.

B. THE ADVANTAGES OF THE POST-DEPARTURE SURVEY IN STUDYING TURNOVER

Studying employees after they have quit their jobs has several advantages. The first advantage is that the results are not diluted by those who are not leaving the organization. The second advantage is that respondents can answer more truthfully since there is no opportunity for reprisal. The third advantage is that these individuals have had the opportunity to make choices in the selection of their next job. When someone selects a new job, that selection is much more honest than a response to a survey because it satisfies real desires with real actions. There is nothing hypothetical about accepting new employment. The separated individual, a rational economic actor, is selecting the job that best fits his or her desires.

By studying what that selection is, we have information that we could not obtain

any other way. We have information based on action, not opinion, of what employees who have left are looking for in a job. While no job perfectly matches an individual's desires, the one each employee selects is the one that best fits. By discovering what the most desirable feasible employment alternative is, there will be an objective benchmark with which to compare to the Navy. By using the competition as the benchmark, the Navy can make improvements that will be targeted precisely where needed to improve retention.

C. METHODOLOGY USED IN THIS THESIS

This thesis studies the turnover of junior Surface Warfare Officers using two methods. The first method involves a survey of O-1 to O-3 Surface Warfare Officers currently serving in billets in the fleet. This survey will be referred to as the "fleet survey." The second method involves a survey of O-3 Surface Warfare Officers drilling in the Naval Reserves. This survey will be referred to as the "reservist survey."

1. Goals of the Fleet Survey

The fleet survey has three goals. The first goal is to uncover the factors with which junior Surface Warfare Officers are dissatisfied. The second goal is to determine career intentions and their correlation to factors of dissatisfaction. Ideally, a significant regression model can be developed to explain career intentions based on satisfaction with aspects of Navy life. The third goal is to determine what the internal labor market competition is within the Navy is for Surface Warfare Officers. The Surface Warfare community competes not only with alternatives outside the Navy, but also with alternative careers within the Navy. Identifying differences in other communities will also serve to highlight causal factors in Surface Warfare Officer turnover.

The reason active duty officers are being surveyed, in spite of the disadvantages that have already been discussed, is that the results can be used for a comparison with the results of the survey of the reservists. The fleet survey will serve as a benchmark for the reservist survey. The satisfaction with the active-duty Navy of the active duty respondents can be compared with the satisfaction with the active-duty Navy of the reservists. It is hypothesized that SWOs drilling in the Naval Reserves have similar attitudes towards the active duty Navy as SWOs who are on active duty. Differences in satisfaction between the two groups may help identify areas of dissatisfaction that are most closely correlated with turnover.

When Surface Warfare Officers obtain their warfare qualification, it is typically prior to the completion of their minimum service requirement. Once this qualification has been achieved, they are able to apply for a lateral transfer to another community within the Navy. To many who are dissatisfied with Surface Warfare, lateral transfer is seen as an alternative to leaving the Navy for a civilian career. There are over a dozen communities within the Navy for which an officer may apply. From the Supply Corps to the Judge Advocate General Corps, many of these communities more closely resemble civilian careers than Surface Warfare. Each community has a different mix of positive and negative work characteristics. By asking SWOs which Navy community they would like to transfer to and why, insight can be obtained into what Surface Warfare Officers do not like about Surface Warfare and why they may leave the Navy altogether. It is assumed that the work factors they would desire in another Navy community would be similar to the qualities that they would desire in civilian employment and are lacking in their current

jobs.

2. How the Fleet Survey was Conducted

The survey of junior Surface Warfare Officers was conducted with the assistance of the Monterey Bay Chapter of the Surface Navy Association between August and December of 1996. A copy of the survey was addressed to the Commanding Officer of every surface afloat command in the United States Navy. Upon receipt, it was up to the command to make the appropriate number of copies, distribute, collect, and mail the surveys back. Not every command responded, and not every officer of the participating commands filled out a survey. Not every question on every returned survey was answered. The responses were then entered into Minitab Version 11 on a personal computer for statistical analysis. A few Chief Warrant Officers, Commanders, and Supply Officers returned surveys, but these surveys were not entered in the data base.

The target population of the survey was O-1 to O-4 Surface Warfare Officers. In addition to the officers serving in the fleet, O-1 through O-4 Surface Warfare Officers who are students at the Naval Postgraduate School (NPS) were also surveyed. The responses from the NPS students and O-4s are not used in the analysis for this thesis. The purpose of the analysis is to gain insight into the factors that affect retention of junior Surface Warfare Officers. Officers with the rank of O-4, by virtue of their presence, have made an implicit career decision. Also, retention of O-4 Surface Warfare Officers is not currently a problem within the Navy. Officers who are students at the Naval Postgraduate School incur at least a three-year commitment to serve after graduation. These officers, by their presence at NPS or their rank of O-4, are more career-minded than the rest of the

Surface Warfare Officers in the Navy and would bias the results.

The study of Surface Warfare officer turnover was not the primary purpose of the fleet survey. The fleet survey contains numerous questions that are not applicable to this thesis. Though all of the data from the fleet survey is included in the data file, only the questions that are applicable to this thesis were used in the analysis. This survey is shown in Appendix A.

3. Goals of the Reservist Survey

The survey of reservists attempts to do very much the same thing as the survey of the active-duty members but it is potentially much more valuable. When an officer resigns his or her commission and selects another job, that new job selection is honest and revealing of work-factor desires, even more so than simply responses in a survey. Not only does the action have real consequences, but it also is within the set of feasible options for that individual. If surveyed, most people would say that they would prefer more time off or more pay. The feasibility of fulfilling such desires varies depending on the individual. One can learn what the best feasible alternative to a career in the Navy is for an individual by finding out what actual changes he or she makes in employment after resignation.

There were several specific goals of the reservist survey. One goal was to determine if junior Surface Warfare Officers get paid more or less after they leave active-duty than they did in the Navy. The hypothesis is that former junior Surface Warfare Officers initially get paid less than they did before they left active duty. Previous studies have used pay information from the Census Bureau's Public Use Microdata Sample

(PUMS) to estimate the salaries that officers make after they leave the military.

Unfortunately, those data apply only to veterans with a bachelor's degree and a given number of years of active-duty service. It does not distinguish between officer and enlisted. It does not distinguish among the services or the communities within the services. (Nakada, 1996) As a result, data for Surface Warfare officers may be mixed with the data from former Air Force Sergeants who happen to have bachelor's degrees, amongst others.

Other questions are not even addressed by the Census Bureau data. Do the respondents work more hours or fewer hours than they did in the Navy? Is their medical care perceived to be better or worse than it was in the Navy? Is the level of stress at work higher or lower than it was in the Navy? By determining the differences between the perceptions of the Navy and perceptions of civilian employment that these officers actually obtain, one can get a realistic assessment of where the Navy is succeeding in taking care of its people and where it is not.

Another goal of the reservist survey is to develop an hedonic model that quantifies the amount of non-wage job characteristics junior Surface Warfare Officers are exchanging for changes in pay. The hypothesis is that these officers are accepting lower pay in civilian jobs (at least initially) in exchange for perceived improvements in non-wage job characteristics. The inputs to the model will be self-reported wages and self-reported comparisons of satisfaction between reservists' civilian jobs and their most recent active-duty jobs in the Navy.

Only officers drilling in the reserves were selected for survey for two important

reasons. The first reason is that in order to survey personnel who are no longer attached in any way to the armed forces, permission must be obtained from as high up as the Office of the Secretary of Defense. The permission process, even if it is successful, takes up to eight months to complete. The complexity and length of time required for approval takes such a survey beyond the scope of what can be accomplished in a thesis at the Naval Postgraduate School.

The second reason reservists were selected is that they have volunteered to maintain regular contact and service in the Navy. In the spectrum of organizational commitment, at one extreme there are those who would never resign from active duty. At the other extreme, there are those who desire to sever all contact with the Navy no matter what the circumstances. Those who are on the fence but decide to leave active duty, are the ones who would be most likely to continue to serve in the reserves. These fence sitters are also the ones who are at the margins of any changes in retention rates. If attitudes towards the active-duty Navy are similar between reservists and active-duty SWOs, it will tend to confirm that reservists are near the margins of SWO retention and not at the extremes. Since the Navy cannot feasibly create an organization that inspires full voluntary retention, it must focus its efforts on those individuals who are at the margin. Those who resign and begin drilling in the reserves are hypothesized to be precisely the type of individuals the Navy should target.

The promotion to O-3 in the Navy is, in most cases, automatic at the completion of the fourth year of service. The completion of the fourth or fifth year of service is also the end of the minimum service requirement depending on commissioning source and

nuclear training. Therefore, nearly all of the officers who leave active duty at the end of their minimum service requirement do so as a newly promoted O-3.

Some officers resign from active duty several years after the completion their minimum service requirement. Since it takes approximately six years to obtain promotion to the next higher grade of O-4, these officers are also resigning as O-3's. The O-3 criterion also allows us to follow those who resigned immediately after their minimum service requirement up to six years ago but are still O-3s in the Naval Reserves. A comparison can then be made between what their civilian earnings are and what they would have been if the officers had remained on active duty for up to six more years.

Officers who resign as an O-1 or an O-2 do not do so under normal circumstances of officer resignation and therefore are excluded from the reservist survey unless they remained in the reserves long enough after resignation to obtain promotion to O-3. Retention of O-4s is not a problem in the Surface Warfare community, so those who resign as O-4's are excluded. Those who resigned as O-3s after the completion of their minimum service requirement and have since been promoted to O-4 in the reserves were also excluded. These officers either recently resigned too many years after their minimum service requirement or resigned soon after their minimum service requirement more than six years ago. Either way, they were excluded because the circumstances of their resignation may be different from those that are the focus of this thesis, recent resignation of Surface Warfare Officers soon after the completion of their minimum service requirement.

4. How the Reservist Survey was Conducted

The survey of the reservists was conducted in the following manner. A list of home addresses was obtained from BuPers of the O-3 Surface Warfare Officers drilling in the Naval Reserves. Unfortunately, of the nearly 650 officers in this category, BuPers only had the home addresses for 115. Surveys were sent to all 115 addresses. Some of these addresses did not exist or were out-of-date. A list of the 650 O-3 Surface Warfare Officers drilling in the Naval Reserves and the addresses of their drilling units was obtained from Naval Reserve Personnel Center. Three hundred and eighty-five of those officers who had not already been sent a mailing at home were sent a survey via their drilling unit. The survey questions and responses are in Appendices D,E, and F.

D. A NOTE ABOUT THE USE OF STATISTICAL ANALYSIS ON THE RESPONSES TO SATISFACTION QUESTIONS

In both the Fleet Survey and the Reservist Survey, there were questions that asked the respondent to indicate his or her satisfaction regarding a specific factor. The options used were “very satisfied,” “somewhat satisfied,” “neither satisfied or dissatisfied,” “somewhat dissatisfied,” and “very dissatisfied.” In the reservist survey, respondents were asked to compare civilian life with the active-duty Navy. The options used were “much better in the Navy,” “slightly better in the Navy,” “about the same as in the Navy,” “slightly better as a civilian,” and “much better as a civilian.”

For the statistical analysis of these questions, a numerical value between 1 and 5 was assigned in the order of each of the five possible responses, as identified above. The assumption made was that the five possible responses were on an equal interval scale.

That is, the intervals between pairs of consecutive responses were assumed to be equal. There is no evidence that the intervals were or were not equal. However, as with any survey of satisfaction, in order to perform mathematical operations on the data an assumption of an interval scale has to be made. The result of an incorrect interval-scale assumption is, at worst, that the statistical significance of some relationships may be lost. While, relationships that are not significant will become even less so.

V. THE FLEET SURVEY RESULTS

In all, 495 responses were obtained from O-1 through O-3 Surface Warfare Officers who are currently serving on active duty in the fleet. Of these officers, 54 are nuclear-trained. There were 130 ensigns (O-1), 196 lieutenants junior grade (O-2), and 169 lieutenants (O-3).

A. SATISFIERS AND DISSATISFIERS

The first set of questions requested that respondents “Indicate your satisfaction with the following aspects of the Navy.” The entire table of tallied responses is shown in Appendix B. Three of the most interesting findings are discussed below.

The aspect with the highest average satisfaction was “Promotion Opportunity.” The aspect with the lowest average satisfaction was “Amount of Family Separation.” Interestingly, average satisfaction with “Total Pay” was the second highest, slightly lower than satisfaction with “Promotion Opportunity.”

“Family Separation” is recently one of the areas of most dissatisfaction among Surface Warfare Officers in the Navy. (Nordmeyer, 1996) However, if there is no significant difference in the satisfaction with family separation between those who stay and those who resign, it may not be a significant factor in their career decisions.

At the other extreme is satisfaction with “Promotion Opportunity.” Simply because respondents were, on average, more satisfied with “Promotion Opportunity” than any other category does not mean that it is not the issue that distinguishes the stayers from the leavers. In conducting analysis for turnover, it is the factors that distinguish stayers from

leavers the most clearly that are the most important to our understanding the causes of turnover.

Recall from the literature review that, in general, unless an individual reports the highest level of satisfaction with an organization, then that individual is likely to be engaged in some level of search activity for alternative organizations. Applied to the results shown in Table 1, that means that only 12 percent and 15 percent of the respondents are so satisfied with pay and promotion opportunity that they are not even considering alternative careers. Conversely, 30 percent of respondents are so dissatisfied with the “Amount of Family Separation” that there is very little that would convince them to remain on active duty any longer than is required. The literature review referred to these individuals as “terrorists.” Many of these officers may be so dissatisfied that they may have a negative impact on the morale of their wardrooms.

Table 1. “Indicate your satisfaction with the following aspects of the Navy:”

Satisfaction with the:	n=	% Very Satisfied	%Somewhat Satisfied	% Neither Satisfied nor Dissatisfied	% Somewhat Dissatisfied	% Very Dissatisfied
Total Pay	495	12	54	14	16	5
Promotion opportunity	495	15	48	21	11	4
Amt of family separation	488	0	4	31	36	30

All percentages are rounded to the nearest whole percent.

B. CAREER INTENTIONS

In order to determine the career intentions of the respondents, the following question was asked:

I plan to:

- ☐ Serve more than 20 years with my current designator.
- ☐ Serve 20 years with my current designator, and then retire.
- ☐ Lateral transfer to a different community.
- ☐ Keep my current designator and resign before 20 years.”

I have coined the following terms to identify the respondents based on how they answered this question:

Careerists: intention to remain in Navy as a SWO for more than twenty years.

Stayers: intention to remain in Navy as a SWO for twenty years.

Transfers: intention to lateral transfer to a different community.

Resigners: intention to resign before twenty years

The percentages of each, for conventional and nuclear-trained SWOs is shown in Table 2.

Table 2. “What are your current career plans?”

	n=	% Careerist	% Stayers	% Transfers	% Resigners
Conventional SWO	432	21	17	18	44
Nuke SWO	53	17	21	0	62

All percentages are rounded to the nearest whole percent

It is interesting to note that none of the nuclear-trained SWOs indicated that they plan to lateral transfer within the Navy. This could be due, in part, to the Navy policy that does not allow nuclear-trained SWOs to lateral transfer until they have completed their Principal Assistant tour. The Principal Assistant tour occurs after the officer has completed Department Head School and the officer is either a senior O-3 or a junior O-4. Conventional Surface Warfare Officers, in comparison, are allowed to apply for lateral transfer as soon as they obtain their Surface Warfare Officer qualification. This usually

occurs in the officer's first four years of commissioned service.

It also appears that the ban on lateral transfers for nuclear-trained officers does little to increase the percentage of these officers who wish to stay in the Navy for at least 20 years. Of those nuclear-trained SWOs who said they planned to resign, 27 percent said they "... would stay in if I could lateral transfer to the community of my choice."

A one-way analysis of variance was performed on the satisfaction questions with responses to the career-intentions question as the independent variable. It must be noted that when using an analysis of variance on a question with responses that may not be on an interval scale, it is more likely that significant differences may exist but not are not detected. However, the reverse is not true: significant differences will not be detected unless they actually exist.

The goal was to see if there were statistically different responses to each satisfaction question depending on the respondent's career intention. Only the satisfaction questions with statistically significant differences ($p < .05$) in the mean of the responses by career intention are discussed below (see Table 3). The entire table is in Appendix C.

"Careerists" had significantly higher satisfaction than others to the "Amt of Sea Duty," "Quality of Family life," "Level of stress at work," "Amt of Family Separation," and "Enjoyment of Job." "Stayers" had significantly higher satisfaction with "Enjoyment of Job" than the those who reported that they would laterally transfer or resign, though it was significantly lower than the "Careerists." "Resigners" had significantly lower satisfaction than others with "Quality of Family Life" and "Navy Leadership."

The results show that the single factor that best distinguishes the stay/leave

decision is “Quality of Family Life.” At one extreme, it separates out the “Resigners” from the rest, and at the other extreme it separates the “Careerists” from the rest.

Unfortunately, “Quality of Family Life” is an ambiguous term and subject to varying interpretations by the respondents. It would have been preferable to have a more specific item in the survey, but that cannot be changed after the fact.

The only factor that best distinguishes “Stayers” from “Transfers” is “Enjoyment of Job.” Even though “Amount of Family Separation” had the lowest average satisfaction response, it was only significant in distinguishing those who planned to remain in the Navy as a Surface Warfare officer for twenty years from those who planned to remain in the Navy as a Surface Warfare Officer for more than twenty years. It was not significant in distinguishing those who lateral transfer or resign. It is also interesting to note that there was no significant difference in the level of satisfaction with “Total Pay” among the groups with different career intentions.

Table 3. Analysis of variance of satisfaction factors by career intentions

Satisfaction with the:	ANOVA p-value	Overall Mean	Mean of Careerists	Mean of Stayers	Mean of Transfers	Mean of Resigners
Amount of sea duty	0.000	3.093	2.620*	3.093	3.184	3.285
Quality of family life	0.000	3.673	3.110*	3.523	3.632	3.987*
Level of stress at work	0.000	3.456	2.950*	3.488	3.553	3.639
Number of hours at work	0.000	3.591	3.020*	3.558	3.553	3.860
Amt of family separation	0.000	3.908	3.540*	3.905	3.893	4.073
Navy leadership	0.003	3.091	2.816	2.988	3.040	3.275*
Enjoyment from job	0.000	2.930	2.101*	2.576*	3.211	3.348

* indicates means that are significantly different ($p < .05$) from the other means

1= "Very satisfied," 2="Somewhat satisfied," 3="Neither satisfied or dissatisfied," 4="Somewhat dissatisfied," 5="Very dissatisfied"

C. DIFFERENCES BETWEEN NUCLEAR-TRAINED AND CONVENTIONAL SURFACE WARFARE OFFICERS

For several of the questions, there were significant differences in the responses of conventional Surface Warfare Officers and nuclear-trained Surface Warfare officers. This tends to indicate that, in general, nuclear-trained Surface Warfare Officers have a different working environment and/or a systematically different perception of that environment from Surface Warfare Officers who are not nuclear-trained. For example, Table 4 shows that nuclear-trained Surface Warfare Officers work significantly more hours while in home port than conventional Surface Warfare Officers.

Table 4. “During your most recent sea tour, while in home port, how many hours per week did you work?”

	n=	% <40 hrs/wk	% 41-50 hrs/wk	% 51-60 hrs/wk	% 61-70 hrs/wk	% 71-80 hrs/wk	% >80 hrs/wk
Conv. SWO	418	1	9	28	34	21	7
Nuke SWO	53	0	6	15	32	28	19
Combined	471	1	8	27	34	22	8

All percentages are rounded to the whole percent.

Table 5 shows that nuclear-trained Surface Warfare Officers perceive a lower-level morale within their wardrooms.

Table 5. “How would you describe the wardroom morale on your most recent ship?”

	n=	% Very high	% Somewhat high	% Neither high or low	% Somewhat low	% Very low
Conv. SWO	419	13	33	26	20	10
Nuke SWO	52	4	19	35	31	12
Total	471	12	31	27	21	10

All percentages are rounded to the nearest whole percent.

Interestingly, nuclear-trained Surface Warfare Officers attributed the morale of their ships to the Commanding Officer at a much lower rate than did conventional Surface Warfare Officers. As shown in Table 6, the nuclear-trained officers gave more weight to “The amount of time the ship was in home port,” “The deployment schedule,” and “Other.”

Table 6. “What was the ONE most significant factor in your most recent ship’s morale?”

	n=	% A	% B	% C	% D	% E	% F	% G
Conventional SWO	416	48	16	7	6	8	5	10
Nuke SWO	49	18	22	6	6	18	6	22
Combined	465	45	17	7	6	9	6	11

All results are rounded to the nearest whole percent.

- A= Command leadership
- B= The amount of time the ship was in home port
- C= Performance of the ship on exercises
- D= Performance of the ship on inspections
- E= Deployment schedule
- F= Quality of liberty while on deployment
- G= Other

D. THE NAVY’S INTERNAL LABOR MARKET FOR SWOS

To study the Navy’s internal labor market for Surface Warfare Officers, the respondents were asked the following two questions, the second immediately following the first:

“If you could Lateral Transfer to the community of your choice, which ONE would you pick?

- ☐ I would not lateral transfer. I would keep my current designator.
- ☐ Nuke SWO (only if you are currently a conventional SWO)
- ☐ Conventional SWO (only if you are currently a Nuke SWO)
- ☐ Naval Aviation
- ☐ Intelligence
- ☐ Submarines
- ☐ SEALs
- ☐ Engineering Duty Officer
- ☐ EOD
- ☐ Supply Corps
- ☐ JAG Corps
- ☐ Fleet Support (1700)
- ☐ Cryptology”

“Which factors influenced your answer to the last question?
(Y=Yes, a significant factor; N=Not a significant factor)

Esprit de Corps	Y	N
Potential for promotion	Y	N
Total Pay	Y	N
Responsibility	Y	N
Quality of home life	Y	N
Professional development	Y	N
Time at sea	Y	N
Quality of leadership	Y	N
Stress at work	Y	N
Other (please specify):”		

The purpose for these two questions was to identify what Surface Warfare Officers thought was the best alternative in the Navy to their current community and why. By cross-tabulating the selected alternative career path with the reasons for selecting that alternative, insight can be gained into the differences in work factors among Navy communities. This is a close substitute to what was done with the reservist survey. By identifying the work factors associated with different Navy communities and how they compare to Surface Warfare, a clearer picture can be obtained of the reasons for turnover and lateral transfer by Surface Warfare Officers.

It is interesting to note that of those who desired to keep their current designator, “Responsibility” was the one factor that was selected as a reason more often than those who chose any other community. The single most popular alternative to Surface Warfare was “Intelligence.” Table 7 shows that the factors selected more often by those who selected “Intelligence” than by those who selected Surface Warfare were: “Quality of Life,” “Professional Development,” “Time at sea” and “Stress at Work.”

Table 7. Cross tabulation of lateral transfer preferences and reasons.

Transfer Option:	n =	% Esprit de Corps	% Promotion	% Pay	% Responsibility	% Qual of life	% Pro. Dev.	% Time at Sea	% Quality Leaders	% Stress at work
Keep SWO desig.	103	45	41	22	85	16	71	37	42	17
Nuke SWO	2	0	0	100	50	0	50	50	0	0
Conv. SWO	5	1	0	20	20	40	60	60	20	60
Aviation	36	71	9	48	39	53	50	33	32	73
Intell.	65	28	14	3	44	70	75	52	30	45
Subs	12	92	33	75	67	25	50	17	75	25
SEALs	27	86	11	11	70	11	52	15	70	37
EDO	34	26	24	0	62	88	79	53	39	38
EOD	17	95	12	6	65	48	71	59	59	12
Supply	18	56	39	6	50	67	72	56	61	72
JAG	45	20	16	14	33	82	69	58	27	44
Fleet Support	44	30	14	2	18	91	32	80	20	63
Crypto.	26	27	12	0	35	66	62	35	42	50
Other	20	30	15	10	55	65	65	50	25	35
Total	454	43	22	15	53	55	64	47	38	41

All percentages are rounded to the nearest whole percent.

The three communities that received the highest percentage of responses to “Total Pay” were, in descending order: “Nuke SWO (only if currently conventional SWO),” “Submarines,” and “Aviation.” This result is expected since these are the three groups that currently get paid more than conventional Surface Warfare Officers.

E. A MODEL OF CAREER INTENTIONS FOR CONVENTIONAL SURFACE WARFARE OFFICERS

A regression was run first on the respondents who indicated that they were not nuclear-power-qualified. The responses to the satisfaction factors were investigated for explanatory power of “career plan” (the dependent variable). The regression equation that was developed did not have very much explanatory power for career decisions. This may be due to the lack of demographic variables that often add explanatory power to career-decision models. It should be noted that satisfaction with “Total Pay” and “Retirement Benefits” were not significant in explaining career decisions for conventional Surface Warfare Officers. The only sign that was unexpected was for the variable for the satisfaction with “Command Opportunity.” Satisfaction with “Command Opportunity” was inversely correlated with intention to remain in the Navy. This result is counter-intuitive but may be explained, nonetheless. Those who have the lowest satisfaction with opportunity for command may be only those who plan on remaining in the Navy long enough for that to be a personal concern. In other words, satisfaction with the opportunity for command may not be driving career decisions; career decisions may instead be driving the level of satisfaction with opportunity for command.

The regression equation, with all independent variables significant beyond the .05 level:

$$\text{careerplan} = 1.19 - 0.149 \text{ command} + 0.268\text{quallif} + 0.216\text{wrkhours} + 0.106 \text{leadrshp}$$

command = satisfaction with “Command opportunity”

qualilif = satisfaction with “Quality of family life”

wrkhours = satisfaction with "Number of hours at work"

leadrshp = satisfaction with "Navy leadership"

All independent variables are coded as follows:

1="Very satisfied" 2="Somewhat satisfied" 3="Neither satisfied or dissatisfied"

4="Somewhat dissatisfied" 5="Very dissatisfied"

The dependent variable, careerplan, was coded:

1= Careerists: intention to remain in Navy as a SWO for more than twenty years.

2= Stayers: intention to remain in Navy as a SWO for twenty years.

3= Transfers: intention to lateral transfer to a different community.

4= Resigners: intention to resign before twenty years

Of 441 cases, 20 cases contained missing values, leaving 421 cases used.

Table 8. Regression of "careerplan" for conventional SWOs

Predictor	Coefficient	SS	Standard Dev.	T	P
constant	1.194	n/a	.2526	4.73	0.000
command	-0.14863	0.024	0.06137	-2.42	0.016
qualilif	0.26771	64.60	0.05986	4.47	0.000
wrkhours	0.21563	20.67	0.05889	3.66	0.000
leadrshp	0.10590	4.77	0.05340	1.98	0.048

R-Sq=15.1% R-Sq(adj)=14.3% F = 18.57 P = 0.000

F. A MODEL OF CAREER INTENTIONS FOR NUCLEAR-TRAINED SURFACE WARFARE OFFICERS

A regression was also run on the respondents who indicated that they were nuclear power qualified. The responses to the satisfaction factors were investigated, as before, for explanatory power of “careerplan.” Immediately it should be noted how much more explanatory power (see Table 9) the model for the nuclear-trained SWOs has than the model for the conventional SWOs. This is likely due in most part to fact that nuclear-trained SWOs are a much more homogenous group than the conventional SWOs. The heterogeneity of the conventional SWOs makes it more difficult to model the behavior of the entire group. The satisfaction with “Command Opportunity” was the only significant variable common between the conventional and nuclear-trained Surface Warfare Officer models. As with the conventional SWO model, the nuclear-trained SWO model has a negative sign for that variable. It is theorized that the negative sign may be explained by the same reasons for both groups.

Table 9. Regression of “careerplan” for nuclear-trained SWOs

Predictor	Coefficient	SS	Standard Dev.	T	P
Constant	3.0115	n/a	.7780	3.87	0.000
command	-0.6553	6.655	0.1868	-3.51	0.001
seaduty	0.5373	14.641	0.1441	3.73	0.001
retben	0.3599	3.818	0.1638	2.20	0.033
totpay	-0.3397	4.246	0.1691	-2.01	0.050

R-Sq=37.2% R-Sq (adj) =31.9 F = 6.97 P = 0.000

The satisfaction with “Total Pay,” like “Command Opportunity,” also had a negative sign. The sign is theorized to be negative for the same reason for both variables. Satisfaction with “Total Pay” does not drive the career decision in nuclear-trained SWOs. Instead, the career decision is theorized to drive the satisfaction with “Total Pay.” Those nuclear-trained SWOs who have decided to stay in are more dissatisfied with their “Total pay” than those who have decided to lateral transfer or resign because the level of pay will actually affect the stayers in the future. Those nuclear-trained officers who have decided to lateral transfer or resign do not care as much about pay because they are leaving and it will not affect them.

The satisfaction with “Retirement Benefits,” in contrast, is positively related to staying in for nuclear-trained SWOs. This result may be due to the fact that satisfaction with “Retirement Benefits” may be driving career decisions and not the other way around as with “Command Opportunity” and “Total Pay.”

It should also be noted that satisfaction with “Retirement Benefits” and “Total Pay” were significant in explaining the career intentions of nuclear-trained SWOs but not their conventional counterparts. A reason for this result may be that nuclear-trained SWOs are systematically more influenced by considerations of current and future compensation. This difference is expected because pay is why some nuclear SWOs may have selected nuclear power training to begin with.

The regression equation, with all independent variables significant at the .05 level is:

$$\text{careerplan} = 3.01 - 0.655 \text{ command} + 0.537 \text{ seaduty} + 0.360 \text{ retben} - 0.340 \text{ totpay}$$

command= satisfaction with “Command opportunity”

seaduty= satisfaction with “Amount of sea duty”

retben= satisfaction with “Retirement benefits”

totpay= satisfaction with “Total pay”

All independent variables are coded as follows:

1=“Very satisfied” 2=“Somewhat satisfied” 3=“Neither satisfied or dissatisfied”

4=“Somewhat dissatisfied” 5=“Very dissatisfied”

The dependent variable, careerplan, was coded:

1= Careerists: career intention to remain in Navy as a SWO for more than twenty years

2= Stayers: career intention to remain in Navy as a SWO for twenty years.

3= Transfers: career intention to lateral transfer to a different community.

4= Resigners: career intention to resign before twenty years

Of 54 cases used, 2 cases contained missing values, leaving 52 cases used.

VI. THE RESERVIST SURVEY RESULTS

A. DESCRIPTION OF THE RESPONDENTS

There are a total of 650 O-3 Surface Warfare Officers drilling in the Naval Reserves. In all, 151 responses were obtained from the 500 queried O-3 SWOs who are currently drilling in the Naval Reserves. Tallied results are in Appendices D, E, and F. Since the focus of this thesis is on voluntary turnover of junior Surface Warfare Officers, the 18 respondents who indicated that they were involuntarily separated from active duty were excluded from the analysis. Of the remaining respondents, 11 were nuclear-trained as officers and two as prior-enlisteds. Three were female and 14 were non-white.

The selection criterion for the survey of current rank (O-3) within the Naval Reserves, provides a distribution of time since leaving active duty and a distribution of the number of years of commissioned service (Figures 1 and 2). Therefore, models of when the respondents left active duty and how their pay changes over time after they left active duty can be developed.

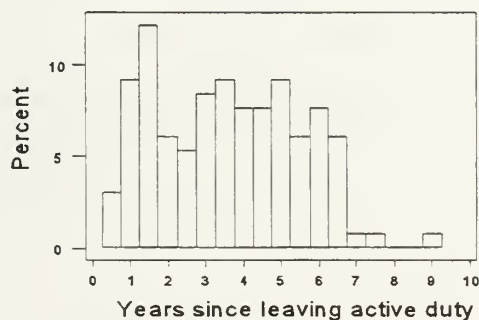


Figure 1. Number of Years Since Respondent Left Active Duty. (n=133)

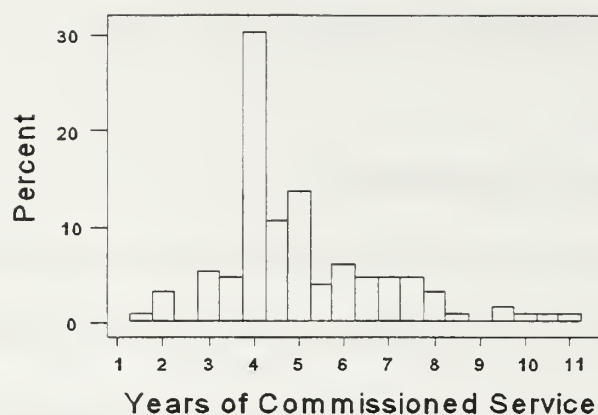


Figure 2. The Number of Years of Commissioned Service When Respondent Left Active Duty. (n=133)

B. SATISFACTION WITH ACTIVE DUTY IN THE NAVY

The first set of questions requested that respondents “Indicate your satisfaction with the following aspects of the Navy when you were on Active Duty.” The entire table of tallied responses is in Appendix D. The most interesting findings are discussed below. For comparison, in Table 1, the responses of the reservists are listed alongside the responses of active-duty Surface Warfare Officers who were asked the same or similar questions.

Table 1. Satisfaction of Active-Duty and Reservist Respondents:

(R)=Reservist (A)=Active duty	n=	Very dissatisfied (%)	Somewhat dissatisfied (%)	% Neither satisfied or dissatisfied	Somewhat satisfied (%)	Very satisfied (%)
Total Pay (R)	133	4	11	8	47	29
Total Pay (A)	495	5	16	14	54	12
Promotion Opportunity (R)	133	3	20	19	45	14
Promotion Opportunity (A)	495	4	11	21	48	15
Amount of Family Separation (R)	132	40	35	23	2	0
Amount of Family Separation (A)	488	30	36	31	4	0
Time to spend with family and friends (R)	133	49	35	9	7	0
Quality of family life (A)	495	25	34	26	13	2
Number of hours at work (R)	133	44	37	15	5	0
Number of hours at work (A)	492	22	36	25	15	2

All percentages are rounded to the nearest whole percent.

C. COMPARISON OF THE ACTIVE-DUTY NAVY WITH CIVILIAN LIFE

The second survey question asked: "Compare your current satisfaction with civilian life to your satisfaction with Navy life when you were on active duty." The results are shown below in Table 2.

Table 2. The Factors that Respondents Indicated Were “Somewhat Better” or “Much Better” as a Civilian.

Percentage	Factor
96	Family separation
96	Time to spend with family and friends
84	Potential pay throughout career
80	Number of hours at work
72	Level stress at work
63	Your dependent’s Medical/dental care
61	Postgraduate education opportunities
59	Advancement opportunities
58	Enjoyment of job
50	Housing

All percentages are rounded to the nearest whole percent.

The entire table of tallied responses is in Appendix E. Fifty-two percent of the respondents stated that the level of responsibility at work was either “somewhat better” or “much better” as a civilian than it was on active duty in the Navy. It is not surprising that SWOs who leave active duty obtain jobs in the civilian sector that have lower levels of responsibility than the they had when they were on active duty. What is remarkable is the fact that 15 percent indicated that the level of responsibility was “somewhat better” or “much better” in the civilian world. It is difficult to imagine how the responsibility of many entry-level civilian jobs can compare with the responsibility of operating billion-dollar weapons systems at sea with the lives of the crew and the security of the United States at stake.

There were four factors for which there was no consensus in the response: “your medical/dental care,” “retirement benefits,” “leadership of direct supervisor,” and “total current pay.” The conventional wisdom is that medical and dental care are superior in the civilian sector to such care in the military. The fact that no consensus was reached on the relative superiority of either tends to dispute that conventional wisdom. Of course, the sample is comprised of mostly healthy young males for which little medical or dental care may be necessary.

Conventional wisdom also holds that the retirement benefits for those who serve in the military are quite generous compared to the civilian sector. The fact that this belief was not reflected in the survey may call into question this assertion. Recent reductions in military retirement benefits may make these respondents doubt whether the current benefits would have remained intact until they reached military retirement.

Conventional wisdom holds that the military imparts superior leadership skills to its members, particularly those who are in the officer corps. The fact that no consensus was reached on the relative superiority of “leadership of your direct supervisor” between the Navy and the civilian sector tends to dispute this belief. It is alarming that after all of the time and money the Navy puts into leadership training of its officers, the end product is merely at a level of parity with the civilian counterpart in the area of leadership.

It is interesting to note that there was no consensus on whether “total current pay” was better on active duty or as a civilian. Forty-nine percent said “total current pay” was either “slightly better” or “much better” as a civilian. It is even more interesting to note that a higher percentage of SWO reservists (76 percent) were “somewhat satisfied” or

“very satisfied” with “total current pay” in the active duty Navy than active duty SWOs (66 percent) who were asked the same question (see Table 1). Both of these results tend to confirm the hypothesis that junior Surface Warfare Officers are not resigning because of low active-duty pay in the Navy.

D. POSTGRADUATE EDUCATION

The following questions concentrate on the subject of postgraduate-education activities of those SWOs who left active duty. The results indicate that 60 percent of the respondents have enrolled in some form of postgraduate education since leaving active duty. Twenty-seven percent have completed a master’s degree since leaving active duty. Twenty-eight percent of the respondents have been studying in the area of business, and 19 percent have been studying in the field of engineering.

It is clear that there is a high interest in continuing education among those SWOs who left active duty. Sixty-one percent of the respondents indicated that postgraduate-education opportunities were “somewhat better” or “much better” in the civilian world than in the active-duty Navy. These findings tend to indicate that if the Navy did a better job of selling its postgraduate education opportunities to junior Surface Warfare Officers, retention of this group might improve. It also indicates that any policy change that would make postgraduate education less desirable for SWOs might have a negative impact on retention.

If graduates of the Naval Postgraduate School (NPS) are ineligible for any SWO retention bonus, a possibility under current consideration, it will have the effect of increasing the personal cost of that education by the amount of the lost bonus. For

instance, a SWO retention bonus of \$10,000 a year for which NPS graduates would be ineligible for four years would have the effect of raising the cost of an NPS education for each officer by \$40,000. Clearly, interest by Surface Warfare Officers in attending NPS would plummet under this scenario.

E. COMPARISON OF NAVY AND CIVILIAN WORKING HOURS

The next set of questions asked the reservists to indicate the number of hours per week they worked when in port on their most recent active-duty sea tour and in their current civilian jobs. The results are shown in Table 3. For comparison, the working hours reported in the active duty survey are also included. The reason for the difference between the results for all the reservist respondents and results of only those who work full-time is due to the fact that some of the respondents either work part-time jobs or are unemployed. Though a precise calculation of the reduction in working hours per week from active duty to the civilian sector is not possible with these data, it appears that the reduction is significant. A majority of the reservists worked between 61 and 80 hours per week when in home port on their last active-duty ship. A majority of the reservists who have full-time jobs now work between 41 and 50 hours per week in their civilian jobs. That constitutes a range of a 17 to 50 percent reduction in working hours per week.

Table 3. Comparison of Working Hours Between Active-Duty Navy and Civilian Jobs.

	n=	% <40 hrs/wk	% 41-50 hours/wk	% 51-60 hours/wk	% 61-80 hours/wk	% >80 hours/wk
All Reserve respondents	130	18	51	25	6	1
Reserve respondents who have full-time employment	111	7	58	27	7	1
Reservists in port when they were on active duty	133	0	2	25	54	20
Conventional SWOs in port now*	418	1	9	28	55	7
Nuke SWOs in port now*	53	0	6	15	60	19

*from the active-duty survey described in chapter V.

Note: All percentages are rounded to the nearest whole percent

F. COMPARISON OF ACTIVE-DUTY PAY AND CIVILIAN PAY

Conventional wisdom suggests that junior Surface Warfare Officers leave active duty to obtain a higher paying job in the civilian sector. The hypothesis of this thesis is that junior Surface Warfare Officers do not leave active duty for higher paying civilian employment. As discussed earlier, pay is not a significant factor in the turnover decision of junior SWOs. More active duty SWOs are either “somewhat satisfied” or “very satisfied” with “total pay” than with any other factor in the active-duty survey. More reservists report they were “somewhat satisfied” or “very satisfied” with active duty “Total Pay” than those who are currently on active duty.

While the satisfaction responses are convincing, the question about pay and turnover cannot be completely settled until it is determined if SWOs who leave active duty actually get higher or lower pay in their civilian jobs. As seen in Figure 3, the average

annual cut in pay right after junior SWOs leave active duty (who obtain full-time employment) is nearly \$8,500. The mean total Navy pay between years 1 and 9 (for those who have full-time employment) when leaving active duty was \$40,846. That translates into a 21 percent pay cut. The regression in Figure 3 also indicates that civilian pay rapidly rises, at an average increase of \$3,486 per year. In a little over two years, pay has returned to what it was when the member left active-duty, without taking inflation into account. Taking inflation into account, it takes closer to three years to reach the previous active-duty pay level.

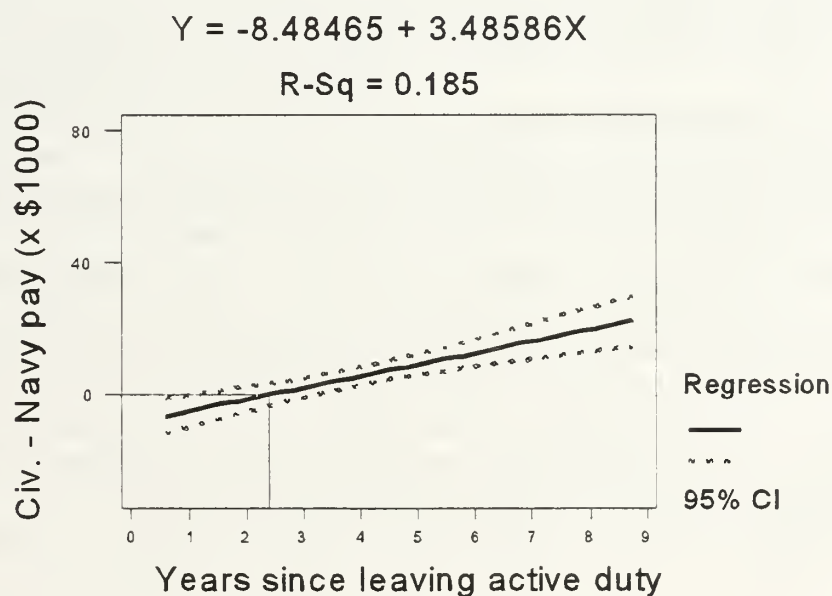


Figure 3. Change in Respondent Pay vs. Time Since Leaving Active Duty.

The initial civilian pay was higher than the Nakada, Mackin and Mackie (1996) estimate based on civilian earnings for a white male with a bachelor's degree and five years of military experience. The data here suggest that initial pay after leaving active

duty is on average \$31,500, while the Nakada et al. study found it to be closer to \$20,000. The Nakada et al. model also estimates civilian salaries will rise about half as fast. If the officers who are unemployed or are working part-time (due in some cases to obtaining graduate education) are included, however, the average initial civilian salary is approximately the same as the Nakada et al. estimate.

As the Figure 4 fitted-line regression shows, for those who were married before they left active duty, the drop in pay is not nearly so severe. The pay cut may not be so severe if the spouse's income can allow a longer job search after the SWO leaves active duty. The spouse who may have been unemployed or employed part-time while on active duty may take a full-time job after the SWO leaves active duty. This increase in employment by the spouse mitigates the reduction in income for the household. Even so, for married members, household income drops an average of \$12,619 initially right after leaving active duty. It then rises an average of \$5,128 a year, without taking inflation into account. Household income reaches pre-departure household pay in a little over two years. If inflation were taken into account, it would take closer to three years to reach pre-departure household income for married Surface Warfare Officers.

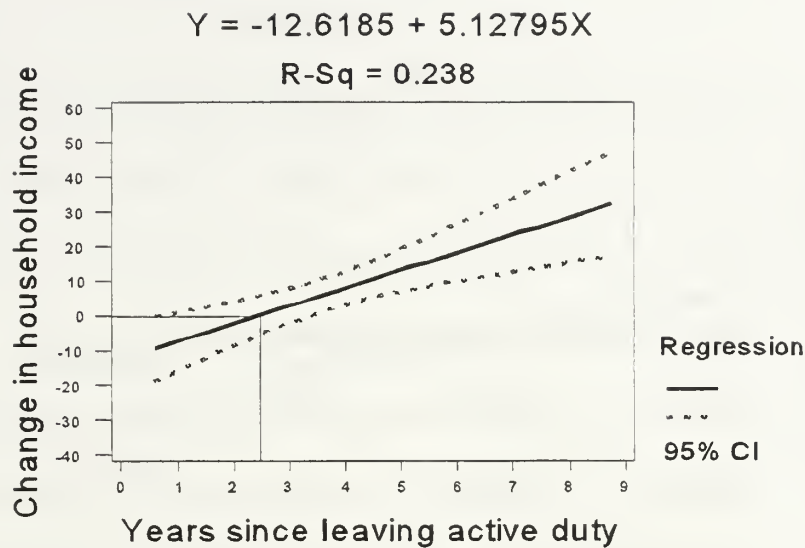


Figure 4. Combined Member and Spouse Pay over Time from Leaving Active Duty.

G. CHANGE IN SPOUSE'S INCOME AS A FUNCTION OF THE CHANGE IN RESPONDENT'S INCOME

As shown in Figure 5 below, for those officers who were married before and after leaving active duty, the change in pay for the SWO is inversely proportional to the change in pay for the spouse. That is, the married SWOs that got the biggest pay cuts after leaving active duty had spouses that tended to get the biggest pay increases after leaving active duty. Conversely, the married SWOs that got the biggest pay increases after leaving active duty had spouses that tended to get the biggest pay cuts after leaving active duty.

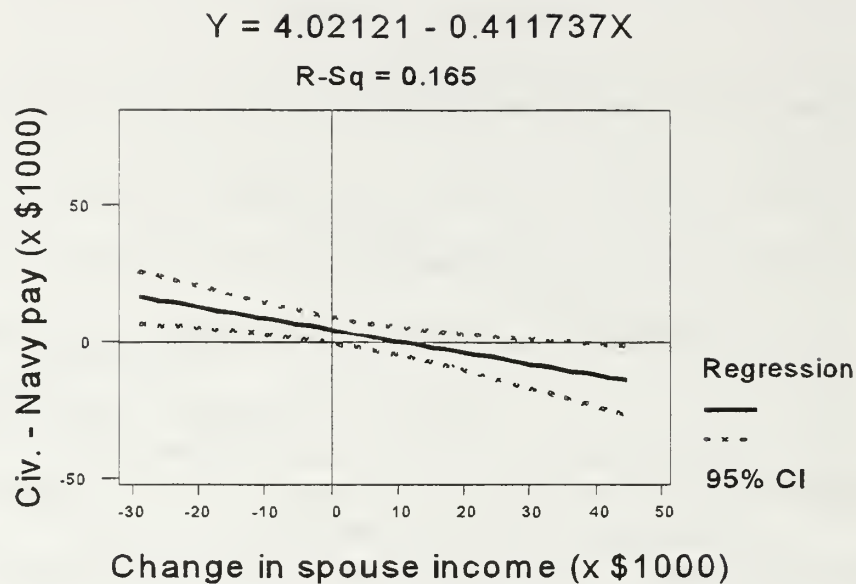


Figure 5. Change in Spouse Pay vs. Change in Respondent Pay after Leaving Active Duty

H. HOW DOES CIVILIAN PAY COMPARE TO WHAT NAVY PAY WOULD HAVE BEEN HAD THE RESPONDENT STAYED ON ACTIVE DUTY?

Since the Navy pay system is very complicated, a number of assumptions must be made before an estimate can be calculated of what reservists would have made had they stayed on active duty. First, since the officer's income is being compared and not household income, the officer is assumed to be single. This is actually the case in 41 percent of the respondents. It is also assumed that the officer leaves active duty at the end of the Minimum Service Requirement (MSR) of 4 Years of Commissioned Service (YCS). This is the most common case among the respondents to the reservist survey. Since pay varies depending on duty station, the Basic Allowance for Quarters and the Variable Housing Allowance are based on the Norfolk rates. More Surface Warfare Officers are stationed in Norfolk than any other single base. It is also assumed that the respondent would have been promoted to O-4 at year 10 of service. Since additional pay is given for

duty at sea, sea pay is included for a normal sea/shore rotation. (Sea duty is assumed for 2 to 4 YCS, and 8-11 YCS.) The details of the Navy pay calculation are in Appendix G. All of the Navy pay information for this estimate was obtained from the Navy Times (1997) pay charts. Clearly, if different assumptions are made, there will be different results.

The civilian pay estimate is based on the fitted-line regression of civilian respondent pay after leaving active duty. The civilian pay has not been adjusted for past inflation and the Navy pay line has not been adjusted for future inflation. If the past inflationary rate of civilian pay is different from the future inflationary rate of Navy pay, then the results will be different. For the purposes of this comparison, the two inflation rates are assumed to be equal.

The reason it takes longer to reach the departure active-duty Navy pay level than it did in Figure 3 is that the Navy pay level used in this comparison is based on the current Navy pay chart for the assumed officer living in Norfolk. In Figure 3, the fitted-line regression was based on reported Navy salaries that may be lower depending on the individual officer's circumstances. Also, if Figure 3 had been adjusted for inflation, it would have the effect of making the time to reach pre-departure active-duty salaries longer.

Eight years after leaving active duty, total civilian pay still does not equal what Navy pay would have been if the respondent had stayed on active duty. From that point on, civilian pay is projected to grow at a faster rate than Navy pay, though that is beyond the relevant range of this data set of civilian pay.

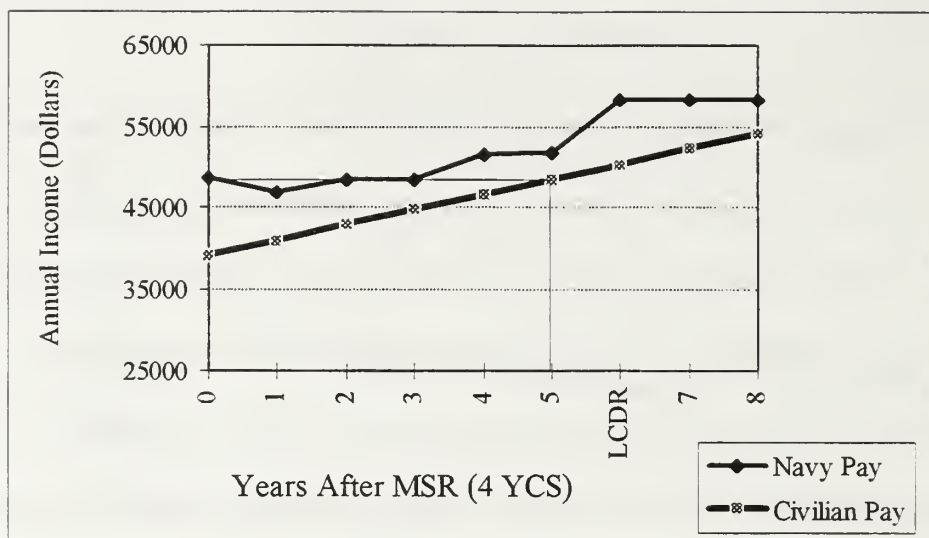


Figure 6. Estimate of Civilian Pay and Navy Pay if the Respondent had Stayed on Active Duty. (Navy Pay Data Obtained from Navy Times, 1997)

I. COMPARISON OF ESTIMATED POTENTIAL CIVILIAN HOUSEHOLD INCOME TO ACTIVE-DUTY NAVY HOUSEHOLD INCOME

The next estimation is of potential active-duty Navy household income and potential civilian household income. The same assumptions that were used for Navy pay for Figure 6 are used in this case with the exception that in this comparison the “with dependents” rates for Basic Allowance for Quarters (BAQ) and Variable Housing Allowance (VHA) were used. For the estimate of the spouse’s income while the respondent was still on active duty, a fitted-line regression of spouse income while the respondent was on active duty was run against years of commissioned service (YCS). None of the pay data were adjusted for inflation. Civilian pay is estimated from a fitted-line regression of total household income after leaving active duty. (Details are in Appendix G.)

The results show that after leaving active duty, the average household income is nearly \$17,000 lower than the 4 year household income for a married SWO living in civilian housing in Norfolk. Household income then rises more rapidly than Navy household income. Projected civilian household income matches projected Navy household income five and eight years after leaving active duty. The reason why household income takes longer to reach pre-departure active-duty Navy household income than it did in Figure 4 is the same reason that was given for Figure 6. Civilian household income is projected to grow at a faster rate than Navy household income from that point on, though that is outside the relevant range of the civilian pay data.

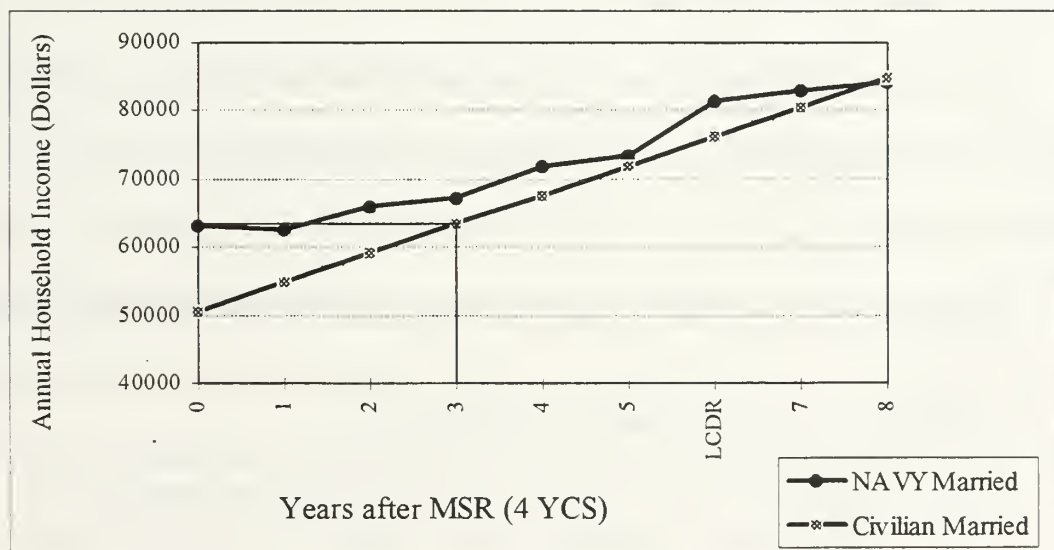


Figure 7. Comparison between Estimates of Potential Active-Duty Navy and Civilian Household Income. (Navy pay data obtained from Navy Times, 1997)

J. HEDONIC MODEL OF CHANGE IN PAY AFTER LEAVING ACTIVE DUTY

From the literature review, hedonic wages are non-monetary work factors for

which the worker accepts reductions in pay. With this concept in mind, a regression model was developed from the reservist survey to determine if there were any non-monetary job factors that SWOs who left active duty exchanged for salary. As indicated in the model below, there were only three variables that were significant at the .05 level of significance that explained salary differentials after leaving active duty: (1) Years since leaving active duty (YRDIFF), (2) a binary variable that indicates if the member has full-time employment (fulltime), and (3) the response to the question asking the respondent to compare the level of work stress between his or her current civilian employment and the level of stress experienced at work in the active-duty Navy (cworkstress) were significant. Table 4 describes the regression results.

Hedonic model of change in pay after leaving active duty:

$$\text{Paydiff} = - 21.4 + 3.18 \text{ YRDIFF} - 3.76 \text{ cworkstress} + 29.3 \text{ fulltime}$$

Definition of variables:

Paydiff = Current Civilian total pay - Total Navy pay when respondent left active duty

YRDIFF = Years since respondent left active duty

fulltime = binary variable (1=currently employed full time, 0=unemployed or employed part-time)

cworkstress = Response to question "Compare your current satisfaction with civilian life to your satisfaction with Navy life when you were on active duty" for the factor "Level of stress at work"

The coding for "cworkstress" is as follows:

1 = "Much better in the Navy," 2 = "Slightly better in the Navy," 3 = "About the same as in the Navy," 4 = "Slightly better as a civilian," 5 = "Much better as a civilian"

Table 4. Regression of “Paydiff”

Predictor	Coefficient	SS	Standard Dev.	T	P
constant	-21.387	n/a	6.149	-3.48	0.001
Yrdiff	3.1751	9799.5	0.6520	4.87	0.000
fulltime	29.284	11372.9	3.440	8.51	0.000
cworkstress	-3.763	1474.9	1.234	-3.05	0.003

R-Sq = 55.2% R-Sq(adj) = 54.0% F = 47.61 P = 0.000

There are several interesting conclusions that can be drawn from this model. The first is that as the comparative level of stress at work improves as a civilian, the level of pay decreases from what it was on active duty in the Navy. There is clearly a trade-off being made between salary and work stress among junior SWOs who leave active-duty.

The second interesting conclusion that can be drawn concerns what was not significant in predicting pay after leaving active duty. No other change in a work-related factor was significant in explaining pay changes after leaving active duty. Also, years on active duty did not significantly explain changes in pay from active-duty Navy to civilian employment. In other words, the average pay drop was the same whether the respondent left at the four-year point or the ten-year point. This insensitivity to years of service indicates that additional years spent on active duty as an O-3 result in very little value added to the potential salary of the individual in the civilian job market. Having a master’s degree, obtained either on active duty or after leaving active duty, was not significant in explaining the change in pay from active duty Navy to civilian pay. If these facts are known to active-duty junior officers, it may be a factor in a majority of the turnover taking

place as soon as the minimum service requirement expires.

K. THE EFFECT OF ACTIVE DUTY SERVICE ON CIVILIAN SALARIES

As seen in the regression of Figure 8 below, there is very little relationship between years of commissioned service and the change in average civilian pay obtained by junior Surface Warfare Officers who have full-time employment. SWOs who leave at the fourth year of commissioned service have the same average change in pay when they leave active duty (in dollars) as SWOs who leave at the tenth year of commissioned service. However, since Navy pay is higher at the tenth year of service than it is at the fourth, the percentage of the change is smaller at the tenth year.

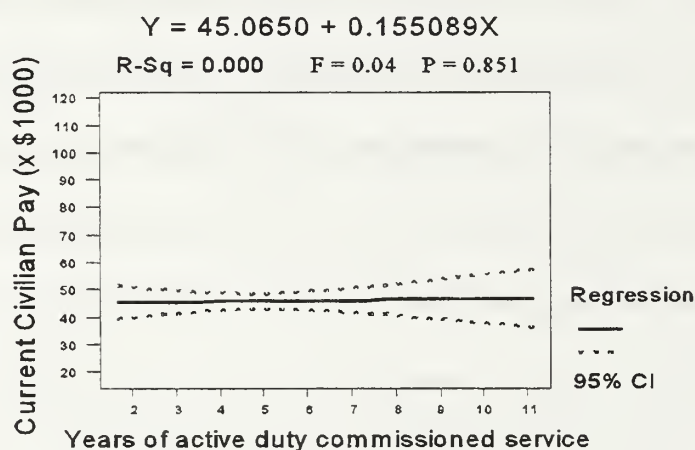


Figure 8. Change in Pay after Leaving Active Duty vs. Years of Commissioned Service.

L. MODEL OF YEARS OF COMMISSIONED SERVICE WHEN RESPONDENT LEFT ACTIVE DUTY

Since there is a range of years of active-duty service when the respondents left active duty (Figure 2), there is an opportunity to develop a model that explains why

respondents left the active-duty Navy when they did. The finding above that there is no civilian salary benefit for staying on active duty until the tenth year suggests the question why some of these reservists stayed on active duty as long as they did.

The following linear regression model was developed to explain why commissioned-service respondents left active duty when they did. Table 5 describes the regression results.

(All independent variables were significant at the .05 level.):

$$\text{YCS} = 1.89 + 0.178 \text{ commandpot} + 0.463 \text{ spouseinf} + 4.75 \text{ nps} + 2.47 \text{ ta} + 2.68 \text{ pocket} \\ + 1.02 \text{ single} + 0.251 \text{ seaduty}$$

Definition of variables:

YCS = Years of commissioned service when the respondent left active duty

commandpot = Response to the question “What do you think your personal chances would have been to get a command at sea if you had stayed on active duty as a Surface Warfare Officer?”

Coding for commandpot: 1=“Very likely,” 2 = “Somewhat likely,” 3 = “Neither likely nor unlikely,” 4= “Somewhat unlikely,” 5 = “Very unlikely”

spouseinf = Response to the question “How much influence did your spouse have on your decision to resign?”

Coding for spouseinf: 1 = “Not Applicable,” 2 = “No influence,” 3 = “Some influence,” 4= “Moderate influence,” 5 = “A lot of influence.”

nps = binary variable (1=I obtained my master’s degree from Naval Postgraduate School, 0= I did not take any courses towards master’s degree while on active duty)

ta = binary variable (1=I used tuition assistance for courses leading towards a masters degree, 0= I did not take any courses towards master’s degree while on active duty)

pocket = binary variable (1=I took courses towards a master's degree while on active duty without any monetary assistance from the Navy, 0= I did not take any courses towards master's degree while on active duty)

single = binary variable (1=I was not married at my last active-duty command, 0 = I was married at my last active-duty command)

seaduty = response to the question: "Indicate your satisfaction with the following aspects of the Navy when you were on active duty" for the factor "Amount of sea duty."

Coding of seaduty: 1="very dissatisfied," 2="somewhat dissatisfied," 3="neither satisfied or dissatisfied," 4= "Somewhat satisfied," 5 = "very satisfied"

Table 5. Regression of Years of Commissioned Service (YCS)

Predictor	Coefficient	SS	Standard Dev.	T	P
constant	1.8903	n/a	0.6672	2.83	0.005
Commandpot	.1777	5.065	0.0887	2.00	0.047
Spouseinf	.4630	10.446	0.1364	3.39	0.001
nps	4.747	21.063	0.3567	3.68	0.000
ta	2.4677	23.888	0.5890	4.19	0.000
pocket	2.6816	107.584	0.3567	7.52	0.000
single	1.0197	9.183	0.4265	2.39	0.018
seaduty	0.2508	6.203	0.1040	2.41	0.017

R-Sq = 49.4% R-Sq (adj) = 46.4% F = 16.31 P = 0.000

There are several conclusions that can be drawn from this model. The less likely the respondent thought it would be to get command at sea, the longer he or she stayed in. At first this does not make sense unless the assumption of cause and effect is reversed. The better way to interpret this is to say that the longer the respondent stayed in before leaving, the less likely the perceived potential for command. This indicates that those who

leave early in their careers do so *despite* the fact that they feel they still have a high likelihood for command. Those who leave later in their careers may be doing so *because* they feel they have a low likelihood for command.

Having taken classes towards a master's degree by any means while on active duty was significant in explaining when the respondent left active duty. Having taken the classes resulted in staying on active duty longer. This may be due in large part to the fact that junior Surface Warfare Officers do not have the opportunity to take classes until they reach their first shore tour (that occurs after the minimum service requirement). By virtue of the fact that they took any classes, they are not SWOs who left active duty as soon as the minimum service requirement had expired. The coefficient for NPS was understandably larger than for tuition assistance (TA) or out-of-pocket (pocket) because of the three-to-four-year commitment to serve after graduating NPS. Even though use of tuition assistance incurs a two-year commitment to serve after completing the classes, its coefficient was smaller than the coefficient for "pocket" which incurs no commitment to serve.

The coefficient for the variable "spouseinf" indicated that the more influence the spouse had on the decision to resign, the longer the respondent stayed in. A better interpretation is to reverse the cause and effect. The longer the respondent stayed in, the more of an influence the spouse had on the decision to resign. The coefficient for the binary variable "single," when the factor of spousal influence is removed, indicates that being single increases the number of years the respondent stayed in before leaving active duty.

The coefficient for the variable “seaduty” indicated that the more satisfied the respondent was with the amount of sea duty, the longer the respondent stayed in before leaving active duty. This result is perfectly reasonable.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. THE PRIMARY CAUSES OF JUNIOR SURFACE WARFARE OFFICER TURNOVER

From the survey of junior Surface Warfare Officers on active duty, the factor that most clearly distinguished those who plan to remain in the Navy for twenty years as a SWO from those who plan to lateral transfer was greater “enjoyment of job.” More interestingly, the factor that most clearly distinguished from those who plan to resign and those who plan to lateral transfer was significantly lower satisfaction with “Navy leadership” and with “quality of family life.” Those who planned to stay in the Navy as a Surface Warfare Officer for more than 20 years were significantly more satisfied than the others with “amount of sea duty,” “quality of family life,” “level of stress at work,” “number of hours at work,” “amount of family separation,” and “enjoyment of job.”

One conclusion that can be drawn from these results is that officers who plan to stay in the Navy for more than 20 years have a significantly higher satisfaction with the Navy in many areas. It is not so much a specific factor that causes these individuals to have the intention to stay in the Navy for more than 20 years; rather it is more likely that there is some characteristic in their personality or a “taste for military life” that causes them to view most aspects of the Navy in a more positive light.

Those officers who plan to leave feel that the only way they can improve their work and family environment is to leave the Navy completely. In their eyes, their significantly lower satisfaction with “quality of family life” and “Navy leadership” can only

be improved in by leaving active duty. In comparison, those who plan to lateral transfer did not have significantly different satisfaction with “quality of family life” and “Navy leadership” from those who planned to stay in Surface Warfare. The officers who planned to lateral transfer had significantly lower satisfaction than stayers in “job enjoyment.” It makes sense then, that the solution to their dissatisfaction would be to lateral transfer rather than to resign.

From the fleet survey regression model of career plans for conventional SWOs, satisfaction with “quality of family life,” “working hours,” “Navy leadership,” and “potential for command” were significant in explaining career decisions. From the fleet survey regression model of career plans for nuclear-trained SWOs, satisfaction with “potential for command,” “amount of sea duty,” “retirement benefits,” and “total pay” were significant in explaining career decisions.

The finding that nuclear-trained SWOs have a different model to explain their career plans than conventional SWOs may be as important as the variables themselves. The existence of a retention bonus for nuclear-trained SWOs may be acting to systematically attract officers to the nuclear SWO community who consider pay a higher priority in their career decision-making. Conventional SWOs may have been sorted by the fact that they place a relatively lower priority on pay than nuclear-trained SWOs in their career decision-making. The result may be that the retention bonus given to nuclear-trained SWOs may be less effective for conventional SWOs.

It is also interesting to note that a higher percentage of active-duty Surface Warfare Officers was either “very satisfied” or “somewhat satisfied” with “total pay” than

any other factor in the fleet survey. In addition, there was not a significant difference in satisfaction with “total pay” between those who planned to stay on active duty and those who planned to resign. The conclusion from these results is that pay is not an important cause of the turnover for junior Surface Warfare Officers.

From the survey of O-3 SWOs drilling in the Naval Reserves, the five factors that improved the most since the respondents left active duty were (in order of decreasing improvement): “family separation,” “time to spend with family and friends,” “potential pay throughout career,” “number of hours at work,” and “level of stress at work.” The one area a majority of reservists reported was either “much better in the Navy” or “slightly better in the Navy” was the “level of responsibility at work.”

A comparison of pay when the reservist left active duty and the reservist’s current civilian pay produced some interesting findings. As hypothesized, fully-employed junior SWOs, on average, initially take a significant pay cut (21 percent) when they leave active duty. Single officers do not return to what their income would have been if they had stayed on active duty, on average, even 8 years after leaving active duty. Married officers who have full-time civilian employment, on average, take less of a household pay cut than single officers, and household pay returns to its pre-turnover level between 2 and 3 years. The loss of pay for married officers is mitigated somewhat by the increase in pay of their spouses.

Analysis of the reservist survey found that years of commissioned service was not significant in explaining post-turnover civilian pay. In other words, there was no civilian pay advantage for leaving active duty as an O-3 at ten years of commissioned service

compared to leaving active duty sooner. Taking of master's degree courses while on active duty also did not affect post-turnover civilian earnings for this group.

The three factors that were significant in explaining post-turnover civilian pay were: years since leaving active duty, having full-time employment (compared to part-time employment or being unemployed), and the relative change in the level of stress between the civilian job and the active-duty Navy. The larger the improvement in relative stress from the Navy to the civilian employment, the larger the average decrease in pay the respondent obtained after leaving active duty. In other words, junior SWOs are giving up income in exchange for lower levels of work-related stress. The minority of SWOs who received pay increases after leaving the Navy were more likely to have the same or slightly higher levels of stress at work in their new civilian jobs.

The factors that were significant in explaining when the SWO left active duty were: "potential for command," "influence of spouse," having taken master's degree courses while on active duty, and satisfaction with the "amount of sea duty." The later the respondent left active duty, the less the respondent thought of his or her potential for command and the more of an influence the spouse had in the decision. Having taken master's degree courses increased the time before leaving active duty, with courses at the Naval Postgraduate School increasing the time on active duty more than courses taken by other means. Not having been married on active duty increased the length of time before the respondent left active duty.

Policies that would cause the spouse to see the Navy in a more favorable light would have a greater positive retention effect for SWOs the more years of service the

SWO has beyond the minimum service requirement. Since spouses have less influence on turnover at the completion of the minimum service requirement, the effect on early turnover would be smaller. Increasing the attractiveness of postgraduate education for junior Surface Warfare Officers would also increase their retention.

B. RECOMMENDATIONS

1. Surface Warfare Officer Retention Bonus

There is no evidence to suggest that a retention bonus will not increase retention of junior Surface Warfare Officers. Turnover of junior SWOs should be viewed as a symptom of other problems. Though pay is not one of the problems, an increase in pay may help alleviate the symptom of low retention while doing nothing to correct its underlying causes.

The finding that conventional SWOs may value monetary incentives less than nuclear-trained SWOs suggests that a bonus identical to the nuclear-retention bonus may have less of a retention impact for conventional SWOs. If nuclear-trained SWOs are ineligible for the SWO retention bonus, an unintended consequence will be that the pay differential between conventional and nuclear-trained SWOs will be reduced. Since this thesis indicates that nuclear-trained SWOs may be attracted by the relatively higher pay, reducing that differential may make recruiting of officers for the nuclear SWO community more difficult.

2. Non-monetary Methods to Improve Retention

While the Navy may not be able to do anything in the near future about the amount of time ships are at sea, this thesis has uncovered some changes that could improve

retention of junior Surface Warfare Officers. Thirty percent of all active-duty SWOs surveyed in the fleet reported that they worked 71 hours or more per week when their ship was in home port. Similar results were reported in the reservist survey. Under these conditions, there is little distinction between a ship in port and a ship at sea for the officer and his or her family. Reducing the working hours when ships are in home port may be the single easiest and most effective change to improve the retention of junior Surface Warfare Officers. If officers are taking lower-paying civilian jobs to lower their levels of stress at work, then reducing the levels of stress for these officers may also improve retention.

3. Postgraduate Education

Fifty-nine percent of the reservists surveyed have taken courses at a master's degree level or higher since leaving active duty. Twenty-six percent have completed a master's degree since leaving active duty. Twenty-nine percent of those who have taken master's or higher-level courses took them in the field of business and sixteen percent were in the field of engineering. Sixty percent of the respondents say that postgraduate education opportunities were "slightly better" or "much better" as a civilian. Given these results, it is clear that emphasizing postgraduate education opportunities in the Navy will improve junior Surface Warfare Officer retention. Conversely, making recipients of Navy-funded graduate education ineligible for any SWO retention bonus will have the effect of making that education more expensive to the individual than it currently is. The result may be a drop in interest among SWOs in Navy-funded postgraduate education and a subsequent reduction in the effectiveness of the SWO retention bonus.

4. Another Possible Solution to Meet Manning Needs

When asked, “If you had the opportunity to return to active duty, would you?” 6 percent of the O-3 reservists said “yes” and 44 percent said “unsure.” If retention goals are not met with the SWO retention bonus, a plan to allow O-3 SWOs who are drilling in the Naval Reserves to return to active duty should be investigated. These officers have been, in effect, on a no-cost shore tour. Twenty-seven percent have completed a master’s degree at no cost to the Navy since leaving active duty. Forty percent are currently single and would therefore be more likely (and less expensive) to uproot and move to a new location. If these officers are sent directly to Department Head School with a subsequent two-year obligation to fill department head billets at sea, it would give the Navy a tool to respond rapidly to shortages of SWOs for department head billets. Not only does the Navy get the benefit of their civilian experience and education free of charge, but the presence of a department head in the wardroom who found that the grass was not greener as a civilian may actually help improve the retention of junior Surface Warfare Officers.

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APPENDIX A. THE FLEET SURVEY

1) Indicate your satisfaction with the following aspects of the Navy:

	Very satisfied	Somewhat satisfied	Neither satisfied or dissatisfied	Somewhat dissatisfied	Very dissatisfied
Total Pay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Promotion opportunity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amount of sea duty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retirement benefits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Command opportunity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality of family life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of stress at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Number of hours at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The new fitrep system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Housing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amt of family separation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navy leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Postgraduate education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enjoyment of job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2) What are your current career plans? I plan to:

- ☐ Serve more than 20 years with my current designator
- ☐ Serve 20 years with my current designator and then retire.
- ☐ Lateral transfer to a different community.
- ☐ Keep my current designator and resign before 20 years.

3) If you answered above that you were going to resign before 20 years, would the option of transferring to the community of your choice change your mind?

- ☐ Yes, I would stay in if I could transfer to the community of my choice.
- ☐ No, I would still resign.

4) What capabilities do you think SC-21 should have? Given a fixed amount of money which would you choose for the Navy?

- ☐ A large number of SC-21's that would most closely resemble the FFG-7.
- ☐ A moderate number of SC-21's that would most closely resemble the DD-963.
- ☐ A smaller number of SC-21's that would most closely resemble CG-47.
- ☐ A very few SC-21's that would be state of the art in every warfare area and have V/STOL capability.

5) If you could Lateral Transfer to the community of your choice, which **ONE** would you pick?

- ☐ I would not lateral transfer. I would keep my current designator.
- ☐ Nuke SWO (only if you are currently a conventional SWO)
- ☐ Conventional SWO (only if you are currently a Nuke SWO)
- ☐ Naval Aviation
- ☐ Intelligence
- ☐ Submarines
- ☐ SEALs
- ☐ Engineering Duty Officer
- ☐ EOD
- ☐ Supply Corps
- ☐ JAG Corps
- ☐ Fleet Support (1700)
- ☐ Cryptology

6) Which factors influenced your answer to the last question?
(Y=Yes, a significant factor, N=Not a significant factor)

Esprit de Corps	Y	N
Potential for promotion	Y	N
Total Pay	Y	N
Responsibility	Y	N
Quality of home life	Y	N
Professional development	Y	N
Time at sea	Y	N
Quality of leadership	Y	N
Stress at work	Y	N
Other (please specify):		

7) On your most recent ship, if the ship had to reduce enlisted manning by 10%, which of the following areas would be most adversely effected? (**PICK THREE**)

- ☐ Performing preventive maintenance
- ☐ Manning the GQ watch bill.
- ☐ Performing corrective maintenance
- ☐ Manning the condition III watch bill.
- ☐ Manning inport watch bills.
- ☐ Performing necessary cleaning and preservation.
- ☐ Performing special evolutions (unrep, flight quarters, sea and anchor, etc.)

8) The following is a partial list of assignments available to SWOs during their Department Head tours. Pick the **THREE** billets most likely to result in professional success and viability on the "fast track."

- ☐ Combat Systems (DDG 51)
- ☐ Combat Systems (CG 47)
- ☐ Combat Systems (VLS Spruance)
- ☐ Combat Systems (FFG 7)
- ☐ LT/LCDR command
- ☐ Operations (DDG 51)
- ☐ Operations (FFG 7)
- ☐ Operations (VLS Spruance)
- ☐ Chief Engineer (DDG 51)
- ☐ Chief Engineer (CG 47)
- ☐ Chief Engineer (VLS Spruance)
- ☐ Chief Engineer (FFG 7)

9) How would you describe the impact of TQL on your most recent ship (**PICK ONE**):

- ☐ TQL was increasing its impact on my ship
- ☐ TQL had a constant and continuous impact on my ship
- ☐ TQL was declining in its impact on my ship
- ☐ TQL never had an impact on my ship

10) On your most recent sea tour, while in home port, how many duty sections were **YOU** in?

- ☐ Two duty sections
- ☐ Three duty sections
- ☐ Four duty sections
- ☐ Five duty sections
- ☐ Six or more duty sections

11) On your most recent sea tour, while in home port, how many duty sections were a majority of the **CREW** in?

- ☐ Two duty sections
- ☐ Three duty sections
- ☐ Four duty sections
- ☐ Five duty sections
- ☐ Six or more duty sections

12) During your most recent sea tour, while in home port, how many hours per week did you work?

- ☐ less than 40 hours per week
- ☐ 41 to 50 hours per week
- ☐ 51 to 60 hours per week
- ☐ 61 to 70 hours per week
- ☐ 71 to 80 hours per week
- ☐ more than 80 hours per week

13) If you could increase the pay of Surface Warfare Officers, which **ONE** option would you choose? (Assume that the total cost to the Navy is the same for each alternative)

- ☐ Start a "SWO pay" that would pay a monthly amount while on sea AND shore duty and would begin on commissioning day.
- ☐ Increase "Sea Pay," start paying it the first month of the first sea tour, and only pay it while on a sea tour.
- ☐ Pay an annual "SWO bonus" in return for a commitment to stay in the Navy for a specified length of time.
- ☐ I would not increase the pay of Surface Warfare Officers.
- ☐ Other (please specify)

14) How would you describe the wardroom morale on your most recent ship's morale?

- ☐ Very high
- ☐ Somewhat high
- ☐ Neither high or low
- ☐ Somewhat low
- ☐ Very low

15) What was the **ONE** most significant factor in your most recent ship's morale?

- ☐ Command leadership
- ☐ The amount of time the ship was in home port
- ☐ Performance of the ship on exercises
- ☐ Performance of the ship on inspections
- ☐ Deployment schedule
- ☐ The quality of liberty while on deployment
- ☐ Other (Please Specify)

16) The following is a partial list of shore tour options. Pick the **THREE** most career enhancing billets for a Surface Warfare Officer's FIRST shore tour:

- ☐ Washington D.C. duty
- ☐ Joint duty
- ☐ Naval Postgraduate School
- ☐ Shore Staff
- ☐ Oversees duty
- ☐ NROTC instructor
- ☐ Naval War College
- ☐ Naval Academy
- ☐ SWOS instructor

17) What is your rank? ☐ ENS ☐ LTJG ☐ LT ☐ LCDR

18) How many months has it been since your were last assigned to a ship?

- ☐ I am currently assigned to a ship.
- ☐ I was last assigned to a ship _____ months ago.

19) What class was your most recent (or current) ship?

20) Are you a nuclear trained officer?

- ☐ Yes, I am a nuclear trained officer
- ☐ No, I am not a nuclear trained officer

21) Are you a member of the Surface Navy Association?

- ☐ Yes
- ☐ No

22) Are you a student at the Naval Postgraduate School?

- ☐ Yes
- ☐ No

Thank you for taking the time to fill out this survey. The results will be printed in an upcoming issue of the Surface Warrior. If you have any additional comments feel free to write them on the back of this page. This survey will be read by fellow junior Surface Warfare Officers and we welcome your input.

APPENDIX B. FLEET SURVEY SATISFACTION RESULTS

Satisfaction with:	n=	% Very Satisfied	%Somewhat Satisfied	%Neither Satisfied nor Dissatisfied	% Somewhat Dissatisfied	% Very Dissatisfied
Total Pay	495	12	54	14	16	5
Promotion Opportunity	495	15	48	21	11	4
Amount of sea duty	492	6	21	40	23	10
Retirement benefits	491	10	37	29	15	9
Command opportunity	490	8	33	42	13	4
Quality of Life	495	2	13	26	34	25
Level of stress at work	491	1	19	31	29	19
Number of hours at work	492	2	15	25	36	22
The new fitrep system	495	11	36	32	15	7
Housing	493	11	24	48	11	6
Amt of family separation	488	0	4	31	36	30
Navy leadership	491	4	32	25	29	10
Postgraduate education	488	1	31	47	8	4
Enjoyment from job	491	9	37	19	21	13

All percentages are rounded to the nearest whole percent.

APPENDIX C. ANALYSIS OF VARIANCE OF SATISFACTION

	ANOVA p-value	Overall Mean	Mean of Careerists	Mean of Stayers	Mean of Transfers	Mean of Resigners
Total Pay	0.831	2.485	2.510	2.419	2.566	2.475
Promotion	0.899	2.400	2.440	2.453	2.368	2.377
Sea Duty	0.000	3.093	2.620*	3.093	3.184	3.285
Retirement Benefits	0.542	2.758	2.768	2.616	2.763	2.823
Command Opportunity	0.161	2.716	2.837	2.718	2.520	2.743
Qual. Life	0.000	3.673	3.110*	3.523	3.632	3.987*
Work Stress	0.000	3.456	2.950*	3.488	3.553	3.639
Work hours	0.000	3.591	3.020*	3.558	3.553	3.860
New Fitrep	0.489	2.715	2.740	2.837	2.592	2.686
Housing	0.207	2.769	2.818	2.942	2.684	2.698
Family Sep	0.000	3.908	3.540*	3.905	3.893	4.073
Leadership	0.003	3.091	2.816	2.988	3.040	3.275*
Postgrad Education	0.757	2.619	2.643	2.547	2.573	2.658
Job Enjoyment	0.00	2.930	2.101*	2.576*	3.211	3.348

* indicates means that are significantly different (at .95 level) from the other means

1= "Very satisfied", 2="Somewhat satisfied", 3="Neither satisfied or dissatisfied",
4="Somewhat dissatisfied", 5="Very dissatisfied"

APPENDIX D. ACTIVE-DUTY NAVY SATISFACTION

	n=	% Very dissatisfied	Somewhat dissatisfied (%)	% Neither satisfied or dissatisfied	Somewhat satisfied (%)	% Very satisfied
Total Pay	133	4	11	8	47	29
Promotion Opportunity	133	3	20	19	45	14
Amount of sea duty	133	19	32	30	14	5
Retirement Benefits	133	2	11	22	32	33
Time to spend with family and friends	133	49	35	9	7	0
Level of stress at work	133	30	40	24	6	0
Number of hours at work	133	43	37	15	5	0
Evaluation fairness	133	13	20	27	26	14
Housing	133	2	7	53	20	18
Family separation	132	40	34	23	2	0
Leadership of the CO of your last ship	133	20	19	5	29	27
Leadership of your immediate superior at your last ship	133	23	25	10	24	18
Your Medical/Dental care	133	3	9	19	38	30
Your Dependant's Medical/Dental care	72	5	13	26	33	23
Postgraduate education Opportunities	133	10	20	29	31	11
Enjoyment from job	133	8	21	18	43	10
Responsibility at work	133	1	4	8	44	44

All percentages are rounded to the nearest whole percent

APPENDIX E. COMPARISON OF ACTIVE-DUTY NAVY AND CIVILIAN LIFE

	n=	% Much better in the Navy	% Slightly better in the Navy	% About the same as in the Navy	% Slightly better as a civilian	% Much better as a civilian
Your Medical/Dental care	131	15	17	24	26	18
Your dependant's Medical/Dental care	65	9	12	16	35	28
Housing	133	5	8	38	20	29
Retirement benefits	133	24	19	17	20	21
Total current pay	132	14	20	17	25	24
Potential pay throughout career	133	4	5	8	16	67
Post-graduate education opportunities	132	5	14	20	26	36
Leadership of direct supervisor	132	12	17	27	20	25
Level of stress at work	132	0	8	22	32	40
Number of hours at work	132	2	2	16	27	53
Time to spend with family and friends	132	2	0	2	17	80
Level of responsibility at work	132	14	38	32	8	8
Enjoyment from job	132	3	8	32	30	28
Family separation	129	2	1	2	10	86
Advancement Opportunities	132	3	21	17	28	31

All percentages are rounded to the nearest whole percent.

APPENDIX F. TALLIED RESULTS OF RESERVIST SURVEY

At your last permanent duty station, what type of housing did you live in?
(n=132)

- 91% A) Civilian housing
- 6% B) Base housing
- 0% C) BOQ
- 2% D) Lived on board ship
- 1% E) Other

If you had been given the opportunity to lateral transfer to the community of your choice, would you have remained on active duty?
(n=133)

- 42% A) Yes
- 26% B) No
- 32% C) Unsure

If the Navy had offered you an annual bonus, what is the least amount that would have persuaded you to remain on active duty as a Surface Warfare Officer?
(n=132)

- 12% A) No bonus would have been necessary to keep me on active duty
- 8% B) \$8,000 per year
- 26% C) \$12,000 per year
- 17% D) \$16,000 per year
- 38% E) No bonus would have convinced me to stay on active duty.

If you could have lateral transferred to one of the following communities, which would you have picked?
(n=132)

- 19% A) JAG Corps
- 4% B) Fleet Support (1700)
- 15% C) Engineering Duty Officer
- 23% D) Intelligence
- 39% E) None of the above

If you could have lateral transferred to one of the following communities, which would you have picked?

(n=133)

- 14% A) Cryptology
- 14% B) Explosive Ordnance Disposal
- 11% C) Supply Corps
- 8% D) Medical Corps, Dental Corps, or Nurse Corps
- 54% E) None of the above

Was Surface Warfare your first choice of designator when you joined the Navy?

(n=132)

- 55% A) Yes, it was my first choice
- 6% B) No, my first choice was submarines
- 7% C) No, my first choice was NFO
- 21% D) No, my first choice was pilot
- 11% E) No, my first choice was a designator not listed above

What do you think your personal chances would have been to get a command at sea if you had stayed on active duty as a Surface Warfare Officer?

(n=133)

- 38% A) Very likely
- 31% B) Somewhat likely
- 9% C) Neither likely nor unlikely
- 13% D) Somewhat unlikely
- 10% E) Very unlikely

How much influence did your spouse have on your decision to resign?

(n=132)

- 57% A) Not Applicable
- 4% B) No influence
- 14% C) Some influence
- 13% D) Moderate influence
- 13% E) A lot of influence

How accurate was your letter of resignation in stating your reasons for resigning?
(n=132)

- 18% A) Not applicable
- 37% B) Very accurate
- 36% C) Somewhat accurate
- 4% D) Very inaccurate
- 5% E) Extremely inaccurate

Do you currently have a Master's degree?
(n=133)

- 65% A) No, I have not completed a master's degree.
- 8% B) Yes, I completed a master's degree before I left active duty.
- 27% C) Yes, I have completed a master's degree after I left active duty"

If you have ever taken courses towards a master's degree while on active duty, how were they funded?
(n=129)

- 83% A) I did not take any courses towards a master's degree while on active duty.
- 1% B) I obtained my master's degree at the Naval Postgraduate School.
- 5% C) I used tuition assistance for courses leading toward a master's degree.
- 12% D) I took courses towards a master's degree while on active duty without any monetary assistance from the Navy.

Since I left active duty:
(n=128)

- 40% A) I have not enrolled in a master's or PhD program.
- 27% B) I have been a part-time student in a master's degree program.
- 2% C) I have been a part-time student in a PhD program.
- 26% D) I have been a full-time student in a master's program.
- 6% E) I have been a full-time student in a PhD program."

If you have worked on a master's degree or PhD, in what subject area was it?
(n=131)

- 32% A) N/A, I have not worked on a master's degree or PhD.
- 28% B) Business
- 12% C) Science
- 7% D) Law
- 21% E) Other

If you have worked on a master's degree or PhD, in what subject area was it?
(n=126)

- 33% A) N/A, I have not worked on a master's degree or PhD.
- 2% B) Medicine
- 6% C) Humanities
- 19% D) Engineering
- 40% E) Other

What is your current employment status?
(n=133)

- 84% A) I am employed full-time.
- 3% B) I am employed part-time and looking for full-time employment.
- 6% C) I am employed part-time and looking for full-time employment.
- 2% D) I am not employed and am looking for work.
- 5% E) I am not employed and I am not looking for work.

If you are currently employed, in what field are you working?
(n=127)

- 24% A) Management
- 29% B) Engineering
- 8% C) Consulting
- 9% D) Sales
- 30% E) None of the above

What is your current marital status?
(n=133)

- 59% A) Married
- 0% B) Separated
- 1% C) Widowed
- 4% D) Divorced
- 37% E) Never married

Is your spouse currently: (n=133)

- 41% A) N/A, I am currently not married
- 2% B) On active duty in the military
- 32% C) Working full-time in a civilian job
- 11% D) Working part-time in a civilian job
- 14% E) A homemaker

When I was at my last active duty command, my spouse was:
(n=132)

- 60% A) N/A, I was not married at my last active duty command.
- 2% B) On active duty in the military
- 21% C) Working full-time in a civilian job
- 5% D) Working part-time in a civilian job
- 11% E) A homemaker

How many children did you have when you left active duty?
(n=133)

- 82% A) None
- 6% B) One
- 11% C) Two
- 2% D) Three
- 0% E) More than three

How many children do you have now?
(n=133)

- 65% A) None
- 11% B) One
- 17% C) Two
- 6% D) Three
- 0% E) More than three

In what department did you serve a majority of your time on your last ship?
(n=133)

- 50% A) Engineering
- 25% B) Operations
- 15% C) Combat Systems
- 6% D) Deck Department (Only if Deck was a department on your last ship)
- 4% E) Other

On average, how many hours per week do you spend taking and preparing for classes?
(n=130)

- 76% A) 0-10 hours
- 11% B) 10-20 hours
- 2% C) 20 -30 hours
- 3% D) 30 - 40 hours
- 8% E) more than 40 hours

Did you complete Nuclear Power School and prototype?
(n=133)

- 90% A) No.
- 8% B) Yes, as an officer
- 2% C) Yes, as an enlisted only.

What was your pay grade when you left active duty?
(n=132)

- 2% A) O-1
- 15% B) O-2
- 83% C) O-3
- 0% D) O-4
- 0% E) None of the above

Through which of the following commissioning programs did you obtain your commission?
(n=133)

- 23% A) OCS or AOCS
- 53% B) NROTC Scholarship
- 11% C) NROTC non-Scholarship
- 12% D) Naval Academy
- 2% E) Other

Do you have any prior enlisted service?
(n=133)

- 86% A) No.
- 8% B) Yes, less than four years.
- 6% C) Yes, more than four years.

Are you male or female?

(n=132)

- 98% A) Male
- 2% B) Female

What is your race?

(n=131)

- 89% A) White
- 5% B) Black/African-American
- 4% C) Asian/Pacific Islander
- 0% D) American Indian
- 2% E) Other

If you had the opportunity to return to active duty, would you?

(n=133)

- 6% A) Yes
- 53% B) No
- 41% C) Unsure

Was your leaving active duty voluntary or involuntary?

(n=133)

- 100% A) Voluntary
- 0% B) Involuntary
- 0% C) Unsure

APPENDIX G. CALCULATION OF NAVY PAY

YCS **	Monthly Base Pay (\$)	Sea Pay per mon. (\$)	BAS (\$)	BAQ w/o dep. (\$)	BAQ with dep. (\$)	VHA w/o dep. (\$)	VHA with dep. (\$)	Total Single Navy Pay (\$)	Total Married Navy Pay (\$)
4	3015	150	154	541	643	184	218	48531	50163
5	3015	0***	154	541	643	184	219	46832	48363
6	3159	0***	154	541	643	184	219	48463	50095
7	3159	0***	154	541	643	184	219	48463	50095
8	3272	150	154	541	643	184	219	51621	53252
9	3272	160	154	541	643	184	219	51751	53371
10*	3620	200	154	675	777	209	240	58299	59892
11	3620	205	154	675	777	209	240	58359	59952
12	3823	0***	154	675	777	209	240	58339	59933

Note: All dollar amounts are rounded to the nearest dollar for presentation.

All pay figures obtained from Navy Times (1997)

* Promotion to LCDR assumed

**Years of Commissioned Service

*** Shore duty assumed

Fitted line regression model of respondent pay after leaving active duty (used in Figure 6):

\$Respondent civilian annual salary = \$39100 + \$1870*(years since leaving active duty)

R-Sq = 0.056 R-Sq (adj) = 0.047 F= 6.41 P= 0.013

Fitted-line regression model of spouse pay while respondent is on active duty (used in Figure 7):

\$Spouse income = \$7162 + \$1430*(YCS)

R-Sq=0.033 R-Sq(adj)=0.015 F= 1.82 P= 0.183

Fitted line regression model of civilian household income after leaving active duty (used in Figure 7):

\$Total civilian household income = \$50500 + 4280*(years since leaving active duty)

R-Sq= 0.084 R-Sq (adj) = 0.072 F= 6.71 P= 0.012

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